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The Effect of Problem-Based Learning Model in Learning Listening Comprehension (Case Study of Arabic Language Students at Farhangian University)

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ABSTRACT

Objective: The objective of the present investigation is to examine the impact of problem-based learning (PBL) on the development of listening comprehension competencies in the Arabic language.

Methods: This research was conducted as a quasi-experimental study employing a pre-test-post-test framework inclusive of a control group. The statistical population under consideration comprised Arabic language students enrolled at Farhangian University of Bandar Abbas during the academic year 2022. The sampling technique utilized was a non-probability method, which resulted in the participation of 58 individuals who were randomly allocated into two distinct groups: an experimental group consisting of 29 individuals and a control group also comprising 29 individuals. The analysis of covariance (ANCOVA) technique was employed for the purpose of data analysis.

Results: The findings of this study indicated a statistically significant disparity between the experimental and control groups, demonstrating that the participants in the experimental group exhibited more pronounced changes.

Conclusions: Consequently, one may infer that the PBL approach has effectively enhanced students' listening comprehension abilities, thereby encouraging both educators and learners to implement the PBL strategy within the domain of listening comprehension to foster oral communication skills.

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Introduction

The origins of problem-based learning can be attributed to the progressive education movement, particularly the seminal contributions of John Dewey. He posited that educators ought to regard students as innate explorers; individuals who endeavor to assimilate and generate knowledge (Renier, 2022). Dewey contended that the initial engagement with any academic subject, if it is to incite cognitive engagement rather than mere vocabulary memorization, should be conducted in the most informal or unstructured manner feasible (Jorgensen, 2012). He maintained that the pedagogical strategies that have reliably yielded positive outcomes in formal educational settings are fundamentally grounded in contexts that elicit contemplation in quotidian life. These strategies instruct learners in the execution of tasks, rather than merely providing them with information; and such execution necessitates cognitive engagement, which consequently fosters the development of intentional associations (Fallace, 2009). Learning is an inherent outcome of active engagement (Dewey, 2024). One context where applied learning is essential is with individuals acquiring a second language. Thus, auditory processing and listening skills are among the primary components for comprehending the nuances and, by extension, utilizing the second language. The acquisition of Arabic exemplifies a scenario wherein learners must enhance their auditory skills to facilitate more effective learning. Proficiency in listening comprehension of Arabic constitutes one of the fundamental competencies in mastering this language, necessitating the implementation of efficient and pragmatic pedagogical methodologies. This competency enables learners to accurately interpret dialogues and auditory materials, thereby allowing for meaningful participation in diverse communicative contexts (Ghazavi et al., 2020). The endeavor of acquiring a foreign language encompasses a multifaceted process that is contingent upon various elements including the learner, the instructor, the instructional methodology, and analogous factors; however, among these elements, the instructional methodology exerts a pivotal influence on the educational environment, such that it also impacts other components. Consequently, the utilization of an effective and practical instructional approach is of paramount importance (Fouladi et al., 2022).

In pursuit of this objective, and to facilitate students' reflection on real-life situations while applying their acquired knowledge in practice, an array of instructional methods has been employed; however, within this framework, the investigation into the impact of these methods on

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Arabic language acquisition remains notably scarce. The problem-based learning (PBL) methodology was first conceptualized in 1920 by the elementary educator Celestine Fernet, and subsequently adopted as a pedagogical approach for medical students at McMaster University in Canada in 1960 (Preeti et al., 2013). Within the paradigm of problem-based learning, instruction is predicated on the articulation or presentation of a problem or ailment, its definition, deliberation, and the exchange of ideas pertaining to it. In this framework, students are organized into collaborative groups wherein they investigate the topic or dilemma, assemble the requisite materials for its resolution, and engage in discourse and debate concerning the pertinent questions associated with it. Through collaborative discourse, learners identify their educational requirements and enhance their personal knowledge frameworks. The initial phase of the learning continuum within this pedagogical method involves contemplating the resolution of a challenge, wherein students articulate their educational objectives collectively (Panjehpour & Ataee, 2012). The notion of a problem-centered pedagogical approach predates formal educational systems, positing that the inception of the learning experience ought to stem from a challenge, enigma, or inquiry, thereby fostering motivation among learners to engage in problem-solving or inquiry resolution. This perspective posits that the quintessential aim of education should inherently be problem-solving, as individuals must acquire the skills necessary to address challenges in their professional endeavors, eschewing the mere memorization of information followed by evaluative assessments. Problem-Based Learning (PBL) represents an instructional methodology grounded in constructivist principles of cognition, wherein novel knowledge is scaffolded upon the learners' existing cognitive frameworks. Students actively construct their own understanding through collaborative engagement, establishing connections to previously acquired concepts, and applying learned material across diverse contexts. This educational paradigm necessitates a more participatory role for students within the learning environment compared to conventional pedagogical methodologies. Within this instructional framework, the emphasis lies in the pursuit of significance. In the PBL paradigm, students undergo a transformation from passive recipients of knowledge to active contributors by delineating both the substance and the modalities of their learning requirements (Zarshenas et al., 2010). Cooperative learning encompasses a variety of strategies applicable across all educational tiers and disciplines, all of which are predicated upon the principles of student group division and the promotion of positive interdependence among

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participants (Fathi Abdollahi et al., 2022; Moradi et al., 2022). The advantages of the PBL methodology encompass the enhancement of learning competencies through self-directed initiatives, bolstering critical reasoning, logical thought processes, and cultivating learners' inquisitiveness. Furthermore, acknowledging the dynamic and evolving nature of global phenomena and challenges, PBL serves as a fluid educational approach that fosters creativity and engenders a sense of ownership among learners concerning their projects and tasks. This pedagogical strategy also amplifies learners' motivation for lifelong education, skill acquisition, and the pursuit of viable solutions to diverse problems (Schmidt et al., 2011). Acknowledging the existence of both merits and drawbacks, some disadvantages inherent to this methodology include the challenges and resistance associated with transitioning from traditional teaching paradigms to PBL, as well as the inadequacy of resources and time allocation for effective implementation in each instructional session. Additionally, given the limitation on the number of students who can actively participate in discussions during each session, it is advisable to have a greater number of instructors available to facilitate simultaneous sessions for each subject matter (Alavi, 1997). Consequently, this approach represents one of the interactive methodologies that can be employed within listening comprehension instruction to address students' communicative challenges by eliminating barriers that hinder oral engagement. The application of this approach fosters an increase in learners' self-efficacy, enhancing their ability to comprehend auditory information and to exchange ideas with their peers.

Panjehpour and Ataee (2012) conducted a comparative analysis of the problem-based educational methodology in relation to the teacher-centered pedagogical approach within their research. The findings suggest that the implementation of a problem-solving strategy significantly enhances students' motivation and engagement with biochemistry, facilitating a deeper understanding of the subject matter. Adib Neia et al. (2013) undertook a study aimed at examining the influence of active teaching methodologies on the social problem-solving competencies of fifth-grade elementary school learners, juxtaposing the effects of the problem-solving instructional approach against the exploratory teaching method. Their investigation revealed a statistically significant distinction between the two pedagogical strategies, indicating that the problem-solving method more effectively enhances students' average social problem-solving skills compared to the exploratory approach. Ahmadi and Abdolmaleki (2013) performed research to assess the impact

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of the problem-solving model on the creativity and academic performance of first-year female students. The analytical results indicated that the problem-solving model exerted a favorable influence on students' creativity and the dimensions of fluency, flexibility, and initiative; however, the two cohorts exhibited comparable levels of developmental progress. Furthermore, in their evaluation of the problem-solving method's effect on academic performance, the findings demonstrated that the instruction of chemistry through the problem-solving approach positively influenced students' attitudes, knowledge, and competencies, respectively. Ahadi and Soleimani (2014) executed a study to explore the effects of two instructional methods, namely, the presentation of a fully solved example and the teaching through an incompletely solved example, on the cognitive load experienced by students in a medical language course. The outcomes of this investigation indicated that, while there was no statistically significant difference in cognitive load between the group exposed to fully solved examples and that receiving complete examples, the method remains applicable as an educational strategy. Emamirizi et al. (2019) examined the efficacy of integrating educational games into geometry instruction on the creativity and academic success of third-grade female students. The results indicated that educational games exert a positive influence on academic achievement and highlighted their effect on creativity outcomes.

Although prior investigations varied in their aims and contextual frameworks, there was a consensus that the primary shared objective among them was to elucidate the influence of the PBL strategy on academic achievement, which aligns with the objective of the current research endeavor.

The present research aligns with the majority of earlier studies that employed an experimental methodology characterized by a quasi-experimental design. Similar to the current investigation, most previous studies were confined to examining the impact of a singular independent variable, specifically the PBL strategy. Prior studies indicate that the PBL strategy is applicable across various educational levels, ranging from elementary education to higher education. The current research concurs with previous investigations in affirming the efficacy and influence of the PBL strategy on pedagogical practices in general. A review of past studies and their findings, particularly those that explored the ramifications of learning predicated on the PBL strategy, revealed a notable absence of research investigating the effect of the PBL strategy on the teaching process of Arabic listening comprehension. Consequently, the significance of the current study is

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underscored by the dearth of such inquiries concerning Arabic language learners, thereby distinguishing this research as a pioneering effort in this domain.

The transformations confronting the educational landscape necessitate that educators engage in persistent and ongoing endeavors. Furthermore, to cultivate the capacity for inquiry and advancement, educators must integrate and adapt knowledge to align with the experiences of students and the demands of society. Thus, their knowledge and methodologies must be continuously updated, ensuring a balance between expertise in their subject matter and pedagogical proficiency (Sabori Khosro shahi, 2010). Therefore, the significance of the present study is manifested by its response to the prevalent belief among educators regarding the necessity to prioritize innovative educational strategies, specifically the redefinition of the teacher's role and the enhancement of the student's position as the central figure in the teaching-learning continuum, thus fostering increased motivation. This approach aids in nurturing collaborative spirit among students and contributes to the refinement and advancement of teaching methodologies within higher education institutions, particularly if this study substantiates its efficacy. Given the characteristics inherent in Arabic conversation classes, wherein students are required to exhibit their listening competencies and may occasionally experience anxiety that hinders their performance, the implementation of the PBL strategy in these classes is of paramount importance. The practical implications of the current study lie in its potential to assist Arabic language learners in addressing their academic challenges in listening sessions while endeavoring to foster a renewed appreciation for learning through innovative educational methods and strategies. Hence, in light of the research problem, the inquiry guiding this study is as follows: Does the PBL strategy influence the enhancement of Arabic language listening comprehension among students of Arabic at the Teacher Training University?

Material and Methods

In the context of the current investigation, the objective was to explore the impact of the Problem-Based Learning (PBL) strategy on the enhancement of listening comprehension abilities in Arabic among the student cohort of the Arabic language department at Farhangian University of Bandar Abbas. This inquiry was conducted as a quasi-experimental study employing a pre-test-post-test design with a control group, with the statistical population comprising third-year students from the

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Arabic language department at Farhangian University of Bandar Abbas during the academic year 2022. The sampling technique utilized was non-probability sampling, wherein 58 students were selected and subsequently assigned randomly into two groups: an experimental group consisting of 29 students and a control group also comprising 29 students; the experimental group underwent evaluation using the PBL strategy, while the control group was assessed utilizing traditional pedagogical methods.

It is pertinent to emphasize that the inclusion criteria stipulated that participants must be third-year Arabic students, alongside their willingness and consent to engage in the training program. Conversely, the exclusion criteria dictated that participants who were absent for more than one session, or who expressed unwillingness to partake in the research, would be excluded. Furthermore, to adhere to ethical standards, students were apprised of the voluntary nature of their involvement in the course and assured of confidentiality while outlining the research objectives. Following the acquisition of the requisite permissions, third-year Arabic language students were directed to the classroom, eligible candidates were identified, and informed consent was secured from them to partake in the training course. Subsequent to the sampling process and the allocation of participants into experimental and control groups, the training course was executed in accordance with the Problem-Based Learning methodology. Participants in the experimental group engaged in the training course across 16 sessions, each lasting two hours, conducted at a frequency of one session per week, while members of the control group experienced traditional instructional methods during the same duration. To assess the primary research variable, the scores obtained prior to and following the implementation of the PBL strategy in Arabic language acquisition were utilized. It is significant to note that the univariate analysis of covariance (ANCOVA) test was employed, with data analysis facilitated through the use of SPSS-26 software.

Results

The mean and standard deviation of the Arabic language scores for both the control and experimental groups, delineated by the pre-test and post-test phases, are presented in table 1. The mean Arabic language scores for the experimental group during the pre-test phase were 14.74, which subsequently escalated to 16.88 in the post-test phase. Conversely, in the control group, the

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mean Arabic language scores during the pre-test phase were 16.93, while in the post-test phase, they were 16.03 (Table 1).

Table 1. Mean and standard deviation of pre-test and post-test scores of Arabic language in the experimental and control groups

Variable	Phase	Group			
		Experimental		Control	
		Mean	SD	Mean	SD
Auditory perception	Pretest	14.74	2.59	16.93	1.76
	Posttest	16.88	2.08	16.03	1.73

Prior to conducting the covariance analysis, the Kolmogorov-Smirnov test was employed to assess the normality of the score distribution. The findings indicated that the distribution of the scores pertaining to the research variables exceeded 0.05, thereby suggesting that the distribution of the scores for the variables during both the pre-test and post-test phases within the control and experimental groups adheres to a normal distribution. To evaluate the homogeneity of variances, Levene's test was administered, with the results indicating that its significance level was also not significant, thus confirming the equality of variances across the groups.

Table 2. Univariate analysis of covariance following the Arabic language assessment

Source	SS	DF	MS	F	P	Eta
Constant	31.62	1	31.62	24.47	0.001	0.308
Pretest	135.58	1	135.58	104.92	0.001	0.656
Group effect	5.31	1	5.31	4.10	0.048	0.070
Error	71.07	55	1.29			
Total	15933.56	58				

According to the results delineated in Table 2, a statistically significant difference exists between the experimental and control groups concerning Arabic language proficiency (F=4.10 and P-value=0.048).

Discussion

This research endeavor sought to examine the impact of the Problem-Based Learning (PBL) strategy on the enhancement of Arabic listening comprehension among students of the Arabic language at Tarbiat Moallem University. The findings revealed a statistically significant disparity between the two groups—experimental and control—during the post-assessment, thereby

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indicating that the PBL strategy is efficacious in augmenting Arabic listening comprehension relative to conventional instructional methodologies. This conclusion aligns with the findings of several studies conducted by Panjehpour and Ataee (2012), Adib Neia et al. (2013), Ahmadi and Abdolmaleki (2013), Ahadi and Soleimani (2014), and Emamirizi et al. (2019). The outcomes of these investigations have underscored the effectiveness and efficiency of the PBL strategy in enhancing the competencies of learners.

Language specialists devise instructional scenarios that necessitate problem-solving abilities. Such skills, when imparted effectively, significantly contribute to the learning experiences of students and facilitate the successful enhancement of their listening proficiency. In contemporary pedagogy, the cultivation of listening skills is regarded as paramount among various linguistic competencies. Problem-Based Learning (PBL) has proven to be instrumental in the augmentation of listening skills among Arabic language students at Farhangian University due to its capacity to equip students with problem-solving strategies that bolster their listening comprehension and facilitate a deeper understanding of linguistic meanings.

This educational approach resulted in notable advancements in their listening capabilities. The PBL strategy is effective in enhancing learners' listening comprehension, as it enables them to strengthen their listening skills within authentic and practical contexts. In this framework, learners encounter genuine problems and challenges, necessitating the application of their listening skills to devise suitable solutions. This pedagogical approach fosters active learner engagement in the educational process and heightens motivation through the resolution of real-world issues. The act of solving problems necessitates the analysis and evaluation of auditory information, thereby fortifying the critical thinking skills of learners. Confronting authentic challenges and striving for resolutions enables language learners to better retain auditory information and summon it in analogous contexts. By successfully addressing problems, language learners cultivate greater confidence in their utilization of listening abilities. Consequently, this methodology has the potential to enhance their listening comprehension (Ghazavi et al., 2020).

Overall, the findings of this study affirm the efficacy of the PBL educational strategy in enhancing the listening comprehension of Arabic language students in contrast to traditional pedagogical approaches; however, it is imperative to acknowledge that this study is not without its limitations. The participant cohort was confined to Arabic language students at Farhangian University and

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encompassed a specific educational level, thereby precluding the confident generalization of these results to students across different educational tiers. Nevertheless, in light of the study's findings, the following recommendations are proposed:

- Given the demonstrated influence of the PBL instructional strategy on students' academic outcomes, educators should consistently endeavor to integrate this teaching strategy when appropriate to render their lessons more engaging and consequently reward academic achievement.
- Language educators, along with textbook authors, should incorporate measures pertaining to the PBL instructional strategy in their future endeavors to enhance academic performance.
- Students ought to be encouraged to implement the PBL approach in listening comprehension sessions to foster their oral communication capabilities and bolster their self-assurance.
- It is advisable to engage in research and scholarly inquiries pertaining to the PBL (Project-Based Learning) strategy in the context of Arabic language competencies and frameworks, while taking into account various exemplars and additional factors.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of University of Hormozgan.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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