The Effectiveness of Using Infographic Posters as a Learning Medium for the Arabic Lexicography Course

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ABSTRACT

Teaching and learning Arabic Lexicography is a crucial component in mastering Arabic linguistics; however, its abstract and complex nature often presents difficulties for students. This situation necessitates more creative and innovative instructional approaches to enhance understanding and improve the effectiveness of the teaching and learning process. Accordingly, the use of infographic posters as a learning medium is viewed as a promising pedagogical innovation capable of creating a more engaging and interactive learning experience, as well as increasing students' interest in Arabic lexicography. This study was conducted to evaluate the effectiveness of using infographic posters in an Arabic Lexicography course. A total of 83 students participated in a visual-based teaching intervention, and their performance was analysed by comparing pre-test and post-test scores. Findings from the Paired Sample t-test indicated a significant improvement, with the mean increasing from 20.77 to 26.72, $t(82) = -12.030$, $p < .001$. Overall, the use of infographic posters can be considered an effective learning medium, particularly in enhancing students' understanding, interest, and motivation toward Arabic Lexicography. Therefore, the use of infographic posters is recommended to be expanded to other Arabic language courses and integrated as a supportive component in the development of a more interactive, dynamic, and high-impact curriculum.

Keywords: Infographic Posters; Arabic Lexicography; Visual Learning; Effectiveness; Learning Media.

INTRODUCTION

The teaching of Arabic Lexicography is a crucial component in mastering Arabic linguistics because it trains students to identify and search for Arabic vocabulary effectively using various types of dictionaries that employ different methods of lexical arrangement-whether root-based, first-letter arrangement, alphabetical order, or modern digital approaches (Che Hat et al., 2025; Al-Zubaidi, 2019; Al-Fassi, 2020). This skill is considered critical because dictionaries serve as fundamental tools for understanding the meaning, semantic context, and lexical function of words in both classical and modern texts.

However, the variations in entry organisation, the structure of lexical information, and methodological differences between traditional and contemporary dictionaries often make lexicography learning challenging for students, particularly those who are not yet familiar with navigating the complex formats of Arabic dictionaries (Che Hat et al., 2025; Hassan, 2021; Al-Jubouri, 2019). The Arabic Lexicography course aims to strengthen students' understanding of the fundamental principles of lexicography, distinguish between dictionary compilation techniques, and apply effective strategies for vocabulary retrieval for purposes such as reading, translation, and linguistic analysis.

In the digital era and with the rapid development of linguistic technologies, the ability to use various lexicographical sources-including digital dictionaries, lexical databases, and corpus-based meaning retrieval applications has become increasingly important and relevant. These skills support lexical literacy, self-directed learning, and the academic and professional needs of the 21st century (Al-Sulaiman, 2022; Ibrahim & Ahmed,

2023). Therefore, learning Arabic lexicography is not only theoretically significant but also vital in the context of modern education, which demands strong information navigation skills, digital literacy, and critical mastery of meaning.

In the context of traditional teaching and learning (PdP), the instruction of Arabic lexicography is typically delivered through text-based lectures, lengthy notes, and the memorisation of procedures for locating vocabulary entries. Such linear approaches often fail to provide the necessary visual support needed to help students understand the logic behind the various organisational systems used in Arabic dictionaries, including root-based arrangements, first-letter sequencing, *abjadi* order, and modern digital formats. The absence of visual representations that clarify the relationships between entries, subentries, semantic variations, and cross-references causes students to struggle with navigating dictionaries efficiently, thereby increasing their cognitive load (Abdullah, 2020; Mayer, 2017). This aligns with Sweller's Cognitive Load Theory (1994), which posits that complex information that is not effectively visualised is difficult to process and hinders meaningful learning. Yusuf and Ahmad (2021) likewise report that learners of Arabic often experience cognitive strain when dealing with dense dictionary structures that are not accompanied by visual elements that support information mapping.

In line with advancements in digital pedagogy and the demands of 21st-century learning, the use of visual media and multimodal approaches is increasingly recognised as an effective method for enhancing student engagement and understanding. Mayer's (2017) Multimedia Learning Theory affirms that students learn more effectively when information is presented through a combination of verbal and visual channels rather than text alone. Visual aids such as dictionary navigation diagrams, flowcharts illustrating lookup processes, and illustrations of entry structures can help students perceive the relationships between dictionary components more systematically. Al-Saad (2021) further found that visual materials in Arabic language learning support the processing of complex information and improve students' ability to understand relationships between organisational structures and the meanings conveyed. Accordingly, the integration of visual media such as infographic posters has become an essential necessity to help reduce cognitive load and facilitate students' mastery of dictionary-use skills across diverse organisational systems in Arabic lexicography.

In learning environments that require more visual, interactive, and cognitively supportive approaches, infographic posters emerge as a relevant and effective pedagogical medium to enhance the teaching and learning of Arabic Lexicography in a more systematic and meaningful manner. Aligned with the principles of multimedia learning, infographics integrate text, colour, icons, and images in an organised structure to present complex information in a concise, compact, and easily interpretable form. These visual features not only improve students' focus and motivation but also help them navigate diverse lexical information more quickly and meaningfully, consistent with the findings of Davis and Quinn (2019), which highlight the effectiveness of visualisation in supporting linguistic understanding. Similarly, Saad, Baharudin, and Nik Yusoff (2025) demonstrate that infographics can reduce cognitive load through systematic visual organisation of information, subsequently enhancing student performance in Arabic language learning. Therefore, the integration of multimedia principles and visual pedagogy provides a strong foundation for introducing infographics as an instructional strategy capable of addressing the technical challenges inherent in lexicography learning. In line with this need, the present study was conducted to empirically evaluate the effectiveness of infographic posters in the Arabic Lexicography course, with the aim of offering a more interactive, meaningful, and effective pedagogical alternative for strengthening students' mastery of lexicographical concepts.

METHODOLOGY

Research Design

This study employs a quantitative research design to evaluate the effectiveness of using infographic posters as a teaching medium in the Arabic Lexicography course. A quantitative design was selected because the study aims to objectively measure changes in students' performance before and after the intervention using pre-test and post-test assessments as the primary data. Through this approach, the effectiveness of the infographics can be identified based on score differences and the patterns of improvement observed in students' achievement following their exposure to visual-based instructional methods. Although observations and students' feedback are also considered as supporting information to strengthen the interpretation of findings, the overall analysis of

the study is rooted in quantitative evidence that systematically and empirically assesses the impact of the intervention.

Sample of Study

The study sample consisted of 83 first-year students enrolled in the Arabic Lexicography course at the Faculty of Languages and Communication, Universiti Sultan Zainal Abidin. The sample was selected using purposive sampling, as only students who were directly involved in the lexicography course were eligible to participate in the infographic-based instructional intervention. These respondents were chosen because they represent the target group that faces challenges in navigating various types of Arabic dictionaries and are most likely to benefit directly from the visual-enhanced learning approach introduced in this study.

Research Instrument

The primary instruments of this study were the pre-test and post-test, both of which were developed based on the learning outcomes of the Arabic Lexicography course. The pre-test was administered to assess students' initial proficiency in lexical search skills, their understanding of Arabic dictionary structures, and their ability to navigate dictionary entries effectively. The post-test, on the other hand, was used to measure the extent of change that occurred after the students were exposed to the infographic posters.

Data Collection and Analysis Process

Data collection was conducted in three phases: pre-intervention, intervention, and post-intervention. In the pre-intervention phase, students completed a pre-test to assess their initial level of mastery in lexical search skills, understanding of Arabic dictionary organization, and ability to navigate dictionary entries. Subsequently, the intervention phase involved instructional sessions using infographic posters that illustrated dictionary structures, navigation techniques, and strategies for locating meanings. Students were exposed to several visual-based practice activities over a number of weeks. In the final phase, they completed a post-test to measure the improvement in their mastery after undergoing the intervention. The data were analysed using an inferential quantitative approach to determine the effectiveness of the intervention implemented. A *Paired Sample t-test* was employed to identify whether there was a statistically significant difference between students' performance before and after the use of infographic posters. This method was chosen because it is appropriate for analysing changes in scores within the same group of respondents, allowing for a more accurate comparison of the intervention's impact. Through this analysis, the effectiveness of infographic posters as a teaching medium can be evaluated objectively based on the empirical evidence obtained.

RESEARCH FINDINGS

The following presents the results of the inferential statistical analysis using the t-test to compare the means of two sets of scores. This study employs a paired sample t-test to assess the difference in students' performance between the pre-test and post-test scores following the implementation of infographic posters as a learning intervention.

Table1: Paired Samples Statistics

		Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	Quiz 1 (Pre-Test)	20.77	83	4.377	.480
	Quiz 2 (Post-Test)	26.72	83	2.097	.230

Table 1 presents the descriptive statistics for the students' pre-test and post-test results in the Arabic Lexicography course. The findings indicate that the mean score for Quiz 1 (Pre-Test) was 20.77 with a standard deviation of 4.377, whereas the mean score for Quiz 2 (Post-Test) increased to 26.72 with a lower standard deviation of 2.097. This difference shows a clear improvement in scores following the introduction of the

infographic poster intervention. The reduction in standard deviation in the post-test further suggests that students' performance became more consistent after the intervention, in contrast to the pre-test results which displayed greater score dispersion. Overall, these descriptive statistics provide an initial indication of the effectiveness of using infographic posters in helping students better understand the content of Arabic Lexicography before conducting inferential analysis.

Table 2: Paired Samples Test

		Paired Differences					**t**	**df**	**Sig. (2-tailed)**
		Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				
					Lower	**Upper**			
Pair 1	Quiz 1 - Quiz 2	-5.952	4.507	.495	-6.936	-4.968	-12.030	82	<.001

The Paired Sample t-test analysis in Table 2 indicates a significant improvement in student performance following the instructional intervention using infographic posters in the Arabic Lexicography course. The mean pre-test score was 20.77, compared to a higher mean post-test score of 26.72, reflecting an increase of nearly 6 points. This improvement was accompanied by a reduction in standard deviation from 4.377 to 2.097, suggesting that student performance not only improved but also became more stable and consistent after the intervention. The t-test results yielded a value of $t(82) = -12.030$ with $p < .001$, confirming that the difference between pre-test and post-test scores is highly significant and not due to chance. The 95% confidence interval for the mean difference (-6.936 to –4.968) further demonstrates a strong and reliable improvement attributable to the intervention.

Overall, these findings indicate that the use of infographic posters as a learning medium has produced a clear positive impact on students' understanding of Arabic lexicography. The structured visualisation offered by the infographics helps reduce cognitive load, facilitates the processing of complex linguistic information, and enhances comprehension of lexical structure and related concepts. Therefore, this approach can be regarded as an effective pedagogical strategy for improving student achievement in the Arabic Lexicography course.

DISCUSSION

The findings of the study show a significant improvement in student performance after the instructional intervention using infographic posters, indicating that this visual approach is effective in enhancing students' understanding of Arabic lexicography concepts. The increase in mean scores from 20.77 to 26.72, together with the t-value $(82) = -12.030$, $p < .001$, confirms that the change was not random but a direct outcome of the use of infographics in the teaching and learning process. The reduction in standard deviation in the post-test also reflects improved consistency of learning, thus reducing performance differences among students.

These findings align with the *Cognitive Theory of Multimedia Learning* by Mayer (2017), which asserts that learning becomes more effective when information is delivered through a combination of verbal and visual channels. Infographics, as a medium that integrates text and imagery, provide a structured mode of information delivery capable of reducing learners' cognitive load, especially when dealing with abstract and complex linguistic content. This also supports Sweller's (1994) *Cognitive Load Theory*, which explains that visual elements help optimise cognitive capacity by organising information in a more systematic and easily processed manner.

Additionally, the findings are consistent with Al-Saad (2021), who demonstrated that linguistic visualisation such as morphological diagrams and sentence-structure charts facilitates learners' understanding of form meaning relationships in Arabic. Through infographics, patterns of *wazan*, root words, and derivations can be visualised more clearly, enabling students to establish connections between linguistic structures and their actual

applications in Arabic dictionaries. Similarly, Davis and Quinn (2019) found that infographics enhance students' motivation and focus by presenting information in a concise, structured, and engaging form.

In the Malaysian Arabic language education context, the findings also support those of Saad, Baharudin, and Nik Yusoff (2025), who reported that digital visual tools improve student performance and engagement in learning Arabic. Infographics not only help organise complex lexicographic information but also encourage active learning through visual interpretation, idea structuring, and conceptual application.

Overall, the study provides compelling evidence that the use of infographic posters as a learning medium has a significant positive impact on students' comprehension and performance in Arabic Lexicography. This visual approach is capable of addressing the limitations of traditional pedagogy, reducing cognitive load, and enhancing learning effectiveness by presenting information in a more systematic, accessible, and student-centred manner. Therefore, the use of infographics should be considered an essential component in the design of Arabic language curricula, particularly for courses that are technical and conceptually abstract.

CONCLUSION

In conclusion, the use of infographic posters as a learning medium is found to be effective in enhancing students' understanding of the abstract and complex concepts in Arabic lexicography. Structured visualisation helps reduce cognitive load, facilitates the processing of linguistic information, and increases students' interest and engagement. This approach also aligns with the principles of multimedia learning, which emphasise the integration of verbal and visual channels to support deeper comprehension. Therefore, infographics should be considered a relevant and innovative pedagogical strategy in the teaching and learning of Arabic Lexicography, as well as other Arabic linguistics courses.

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