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DEEP LEARNING INSTRUCTIONAL APPROACH FOR DEVELOPING STUDENTS' UNDERSTANDING OF *FIʿIL MUḌĀRIʿ* IN ARABIC MORPHOLOGY

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Abstract

This study aimed to examine the effect of the Deep Learning Approach on students' understanding of qawāʿid in Arabic language learning, particularly in learning ṣharf with a focus on fiʿil muḍāriʿ. To achieve this objective, the study employed a quantitative approach using a quasi-experimental nonequivalent control group design. The study was conducted with eleventh-grade students at MAN 2 Kota Serang during the 2025/2026 academic year. Purposive sampling was employed, involving 36 students in the experimental group and 32 students in the control group. Data were collected using validated pretest and posttest instruments and analyzed using SPSS. Because the data were not normally distributed, the Mann–Whitney U test was employed. The results revealed no significant difference between the two groups on the pretest; however, a statistically significant difference was observed on the posttest. The experimental group achieved a higher mean posttest score (97.92) than the control group (90.78), indicating that the Deep Learning Approach effectively enhanced students' understanding of qawāʿid.

Keywords Arabic Grammar; Arabic Language; Deep Learning.

INTRODUCTION

Arabic qawāʿid instruction remains largely dominated by teacher-centered approaches, which tend to position students as passive participants in the learning process. This instructional practice negatively affects students' participation, learning motivation, and analytical ability to understand Arabic grammatical rules (Annisa et al., 2023; Hastang & R., 2023). Moreover, students often memorize grammatical rules without fully understanding their functions or practical application in sentence construction. Low learning motivation, limited learning environments, and the suboptimal integration of technology also hinder the effectiveness of Arabic language learning (Aprizal, 2021; Larasaty, 2022). Furthermore, monotonous instructional methods result in limited cognitive and affective engagement, leading to superficial understanding. Mastery of qawāʿid, however, plays a fundamental role in ensuring grammatical accuracy and supporting overall Arabic language proficiency (Aprizal, 2021; Nuroh & Ubaidillah, 2023).

Qawāʿid encompasses the disciplines of nahwu and ṣharf, which examine Arabic sentence structure and morphological changes (taṣrīf) that determine meaning (Nurhikmah et al., 2025). However, ṣharf instruction continues to rely heavily on memorization, limiting students' understanding of wazan patterns and their practical application. Based on preliminary interviews, instruction in taṣrīf fiʿil māḍī continued to use traditional teaching methods, with only 25%–37.5% of students meeting the minimum mastery criterion (KKM). These findings highlight the need for more contextual, interactive, and technology-supported instructional strategies in Arabic language learning (Ghufron et al., 2025; Huda & Ghufron, 2025; Zhao & Shang, 2023).

These challenges highlight the need to shift from teacher-centered instruction to student-centered learning, enabling students to actively construct their own understanding (Hajar & Qohar, 2024). The integration of digital technologies, such as blended learning, audiovisual media, and artificial intelligence, has been increasingly adopted to enhance the effectiveness of Arabic language learning in the digital era (Zhao & Shang, 2023). Previous studies have further demonstrated that audiovisual media and active learning strategies improve students' conceptual understanding and engagement throughout the learning process (Theobald et al., 2020; Ubaidillah et al., 2025). Among the emerging instructional approaches, this study focuses on deep learning. Within the context of 21st-century education, deep learning is widely regarded as an effective pedagogical approach because it promotes meaningful learning, critical thinking, and active student engagement (Istiqomah & Sopian, 2025; Silalahi et al., 2022). Rather than emphasizing rote memorization, this

approach encourages students to understand, analyze, and apply concepts in authentic learning contexts. In addition to improving cognitive achievement, deep learning also fosters reflective thinking and higher-order thinking skills (HOTS) (Khodijah & Aswadi, 2024).

Theoretically, the deep learning approach is consistent with the constructivist theories of Jean Piaget and Lev Vygotsky, which view students as active participants who construct knowledge through meaningful experiences and social interaction (Jawad & Kazim, 2024; Sudarmono et al., 2025). Learning activities that involve analysis, reflection, discussion, and concept exploration are considered more effective than rote memorization because they facilitate a deeper understanding of the relationships among Arabic language concepts (Aprizal, 2021; Larasaty, 2022). Although previous studies have highlighted the limitations of teacher-centered instruction in Arabic language learning, preliminary findings at MAN 2 Kota Serang revealed more specific challenges that required immediate pedagogical attention. Based on preliminary interviews with the Arabic language teacher and classroom observations conducted before the intervention, ṣharf instruction across all ten eleventh-grade classes continued to rely predominantly on conventional teacher-centered methods. Among the ten classes, only one outstanding class (Class XI IPA 5) achieved a learning mastery rate of approximately 80%, exceeding the minimum mastery criterion (KKM). In contrast, the remaining nine classes failed to reach this level. These findings indicate that most students had difficulty understanding Arabic grammatical concepts, particularly those related to taṣrīf fiʿil māḍī, despite having received classroom instruction.

Preliminary interviews also revealed that disparities in students' understanding of Arabic grammar had become a major concern for the Arabic language teacher. While a small number of students demonstrated adequate mastery of grammatical concepts, many others continued to experience difficulties, resulting in considerable differences in learning achievement within the same classroom. To address this issue, students had been encouraged to purchase introductory ṣharf textbooks for independent study; however, most showed little interest in using them. Consequently, the teacher faced a pedagogical dilemma: reviewing previously taught material would reduce the time available to complete the curriculum, whereas continuing with new lessons would leave many students without sufficient understanding of fundamental grammatical concepts. These findings indicate the need for a more engaging, student-centered instructional approach. Therefore, the **Deep Learning Approach** was selected because it emphasizes meaningful learning, active participation, collaborative knowledge construction, and reflective learning experiences.

Several previous studies have examined instructional strategies for improving Arabic language learning outcomes. Significant improvements in students' achievement in Arabic grammar were reported through an intensive reading-based instructional program using a quantitative experimental design (Jawad & Kazim, 2024). Likewise, meaningful learning experiences and increased student participation in Arabic grammar instruction were achieved through the implementation of the Deep Learning Approach (Maturedy, 2025), while collaborative learning was found to enhance students' participation and understanding of qawāʿid (Jundi et al., 2023). In addition, sustained learning motivation was identified as an essential factor in encouraging learners to engage consistently in Arabic language learning and supporting successful second-language acquisition (Annisa et al., 2023). However, these studies primarily focused on improving learning outcomes, collaborative learning, or learner motivation without specifically examining the effectiveness of the Deep Learning Approach in developing students' conceptual understanding of ṣharf, particularly at the madrasah aliyah level.

Recent studies have explored the Deep Learning Approach from pedagogical and technological perspectives, emphasizing mindful, meaningful, and joyful learning in Arabic language instruction (Istiqomah & Sopian, 2025). Likewise, the relevance of the Deep Learning Approach to constructivist learning in higher education was emphasized (Silalahi et al., 2022), whereas its role in promoting higher-order thinking skills and conceptual understanding in primary education was highlighted (Budhiarti et al., 2025). Similar pedagogical principles were also discussed in Arabic language learning at the university level (Albantani et al., 2025). Furthermore, the compatibility of the Deep Learning Approach with Islamic educational settings, particularly pesantren-based instruction, was demonstrated (Albany et al., 2025; Wafi et al., 2025). The growing integration of digital technology, e-learning, and artificial intelligence into Arabic language learning has also been widely reported (Khusnadin et al., 2025; Rahman et al., 2025). However, these studies primarily emphasized conceptual, pedagogical, or technological perspectives, while empirical evidence regarding the classroom effectiveness of the Deep Learning Approach remains limited.

Taken together, previous studies suggest that meaningful learning, collaborative learning, learner motivation, and educational technology contribute positively to Arabic language learning. However, empirical evidence regarding the effectiveness of the Deep Learning Approach in teaching ṣharf, particularly fiʿil muḍāriʿ, at the madrasah aliyah level remains limited. Therefore, this study was conducted to examine the effect of the Deep Learning Approach on eleventh-grade students'

understanding of qawāʿid in learning ṣharf at MAN 2 Kota Serang.

The novelty of this study lies in examining the Deep Learning Approach as a pedagogical framework rather than an artificial intelligence–based technology, focusing specifically on ṣharf instruction (fiʿil muḍāriʿ), providing quasi-experimental evidence of its effectiveness in improving students' understanding of qawāʿid, and offering practical recommendations for implementing more meaningful, active, and student-centered Arabic grammar instruction. Accordingly, this study contributes to the existing body of literature by extending empirical evidence on the effectiveness of the Deep Learning Approach in Arabic language learning at the madrasah aliyah level in Indonesia.

METHOD

This study employed a quantitative approach using a quasi-experimental research design, specifically the nonequivalent control group design, which involves an experimental group and a control group without random assignment of participants (Creswell & Creswell, 2022; Lam & Wolfe, 2022; Rasyid, 2022). The study was conducted in the second semester of the 2025/2026 academic year at MAN 2 Kota Serang. The study population consisted of all eleventh-grade students enrolled at MAN 2 Kota Serang during the 2025/2026 academic year (N = 327). Participants were selected through purposive sampling based on predetermined criteria, including comparable academic ability and the suitability of the instructional schedule. Based on these criteria, Class XI IPA 3 was assigned to the experimental group (n = 36), whereas Class XI IPS 3 served as the control group (n = 32). The research instruments consisted of pretests and posttests designed to measure students' understanding of qawāʿid. The instrument comprised 10 multiple-choice questions and 5 essay questions, all of which were validated by experts before data collection. The study tested two hypotheses: the alternative hypothesis (H_a), which posited that the deep learning approach significantly affected students' understanding of qawāʿid, and the null hypothesis (H_0), which stated that it had no significant effect.

The data were analyzed using SPSS. Data analysis began with the Shapiro–Wilk normality test to examine whether the data were normally distributed. If the significance value exceeded 0.05, the data were considered normally distributed, and an independent-samples t-test was conducted. Conversely, if the significance value was below 0.05, the data were considered non-normally distributed, and the nonparametric Mann–Whitney U test was employed (Rasyid, 2022). The primary data consisted of students' pretest and posttest scores measuring their understanding of

qawāʿid. These data were collected from 68 eleventh-grade students at MAN 2 Kota Serang using expert-validated test instruments administered before and after the implementation of the deep learning approach. Such instruments are essential for generating valid and reliable data for evaluating changes in students' learning outcomes following an educational intervention (Creswell & Guetterman, 2024; Fadhilaturrahmi et al., 2022; Fah & Hoon, 2021). The pretest was administered to assess students' prior understanding, whereas the posttest was conducted to measure their understanding after the learning intervention. The data were subsequently analyzed using SPSS to determine the effect of the deep learning approach on students' understanding of qawāʿid.

FINDINGS AND DISCUSSION

Findings

Descriptive Statistics

Table 1. Descriptive Statistics of Pretest and Posttest Scores

Class		N	Mean	Std. Deviation	Std. Error Mean
Pretest	Eksperimen	36	72,5000	19,00752	3,16792
	Kontrol	32	68,1250	13,36522	2,36266
Posttest	Eksperimen	36	97,9167	4,83662	0,80610
	Kontrol	32	90,7813	14,43056	2,55099

As shown in Table 1, the descriptive statistics indicate that the experimental group had a mean pretest score of 72.50 (SD = 19.01), whereas the control group had a mean pretest score of 68.13 (SD = 13.37). These findings suggest that both groups had comparable prior understanding of qawāʿid before the implementation of the learning intervention, although the experimental group showed a slightly higher initial mean score.

Following the instructional intervention, the mean posttest score of the experimental group increased to 97.92 (SD = 4.84), while the control group obtained a mean score of 90.78 (SD = 14.43). The descriptive results indicate that learning outcomes improved in both groups after the instructional process. However, the experimental group achieved a higher mean posttest score. It exhibited a smaller standard deviation than the control group, indicating that students who received instruction through the Deep Learning Approach demonstrated higher and more consistent understanding of qawāʿid than those who received conventional instruction.

Normality Test

Table 2. Results of the Shapiro–Wilk Normality Test

Class		Shapiro-Wilk		
		Statistic	df	Sig.
Pretest	Experimental	0,867	36	0,000
	Control	0,732	32	0,000
Posttest	Experimental	0,477	36	0,000
	Control	0,698	32	0,000

As presented in Table 2, the normality of the data was examined using the Shapiro–Wilk test, as each group consisted of fewer than 50 participants, making this procedure appropriate for small sample sizes (Creswell & Guetterman, 2024; Mishra et al., 2019). The results indicated that the significance values for both the pretest and posttest scores in the experimental and control groups were all below 0.05 ($p = 0.000$). These findings demonstrate that the data did not satisfy the assumption of normality. Consequently, the null hypothesis of normality was rejected, and a nonparametric statistical procedure was considered more appropriate for subsequent hypothesis testing. Therefore, the Mann–Whitney U test was employed to compare the learning outcomes between the experimental and control groups.

Hypothesis Testing

Table 3. Mann-Whitney U Test Result

	Pretest	Posttest
Mann-Whitney U	426,500	416,000
Asymp. Sig. (2-tailed)	0,058	0,021

As shown in Table 3, the Mann–Whitney U test was conducted to compare the learning outcomes of the experimental and control groups, as the assumption of normality was not satisfied, making a nonparametric statistical procedure more appropriate for hypothesis testing (Politi et al., 2021; Schober & Vetter, 2020). The pretest analysis yielded a Mann–Whitney U value of 426.50 with an Asymp. Sig. (2-tailed) value of 0.058 ($p > 0.05$), indicating that no statistically significant difference existed between the two groups before the intervention. In contrast, the posttest analysis produced a Mann–Whitney U value of 416.00 with an Asymp. Sig. (2-tailed) value of 0.021 ($p < 0.05$), indicating a statistically significant difference following the implementation of the Deep Learning Approach. Accordingly, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_a) was accepted, demonstrating that the Deep Learning Approach had a significant effect on students' understanding of qawāʿid.

Table 4. Mean Rank Comparison of the Experimental and Control Groups

Class		N	Mean Rank	Sum of Ranks
Pretest	Experimental	36	38,65	1391,50
	Control	32	29,83	954,50
	Total	68		
Posttest	Experimental	36	38,94	1402,00
	Control	32	29,50	944,00
	Total	68		

As presented in Table 4, the mean rank values provide further support for the results of the Mann–Whitney U test. During the pretest, the experimental group obtained a slightly higher mean rank (38.65) than the control group (29.83). However, as indicated by the non-significant p-value in Table 3, this difference was not statistically significant, suggesting that both groups had comparable levels of understanding of qawāʿid before the intervention. Following the implementation of the Deep Learning Approach, the experimental group achieved a higher posttest mean rank (38.94) than the control group (29.50). This finding is consistent with the significant Mann–Whitney U test result ($p = 0.021$), indicating that students in the experimental group demonstrated better learning outcomes than those in the control group. These results further support the effectiveness of the Deep Learning Approach in improving students' understanding of qawāʿid.

Discussion

The findings indicate that students who learned through the deep learning approach demonstrated a significantly better understanding of qawāʿid than those who received conventional instruction. The significant difference in posttest scores suggests that the approach effectively facilitated conceptual understanding rather than rote memorization. Collaborative, reflective, and problem-based learning activities enabled students to engage actively with grammatical concepts, resulting in a deeper conceptual understanding.

The present findings can be interpreted through the perspective of constructivist learning theory, which views learning as an active process in which learners construct knowledge through meaningful experiences rather than passively receiving information. From Piaget's perspective, conceptual understanding develops through cognitive restructuring, whereas Vygotsky argued that learning occurs through social interaction and collaborative activities within learners' zones of proximal development. The collaborative discussions, reflective learning, and problem-solving activities implemented in this study reflect these constructivist principles by encouraging students to construct grammatical knowledge both independently and collaboratively (Chuang, 2021;

Schneider et al., 2021; Slavin, 2021).

The implementation of the deep learning approach encouraged students to actively participate in collaborative discussions and problem-solving activities, resulting in significantly higher learning outcomes than those of the control group. These findings are consistent with those of (Silalahi et al., 2022), who argued that deep learning promotes meaningful knowledge construction, critical thinking, and authentic problem-solving within a constructivist framework. Likewise, (Istiqomah & Sopian, 2025) as well as (Syafi'i & Darnaningsih, 2025), emphasized that integrating mindful, meaningful, and joyful learning enhances students' motivation, engagement, and conceptual understanding. This perspective is further supported by (Fullan et al., 2020), who described deep learning as a student-centered approach that strengthens collaboration, critical thinking, and meaningful learning. Collectively, these findings provide further empirical evidence that the deep learning approach is effective in improving students' understanding of Arabic grammar, particularly in learning ṣharf with a focus on fiʿil muḍāriʿ.

The findings of this study further demonstrate that the deep learning approach effectively improved students' understanding of qawāʿid, as reflected in the significantly higher posttest scores achieved by the experimental group. These findings are consistent with those of (Jawad & Kazim, 2024), who reported that active and structured instructional strategies significantly enhanced students' achievement in Arabic grammar learning. Likewise, (Hastang & R., 2023) emphasized that mastery of qawāʿid al-lughah al-'Arabiyyah provides a fundamental foundation for the development of Arabic language skills. This perspective is further supported by (Nurdianto et al., 2021), who identified grammatical competence as a key component of communicative competence in Arabic language learning, and by (Hamoode, 2021), who argued that meaningful grammar instruction enables learners to construct grammatical concepts more effectively. Collectively, these findings provide additional empirical evidence that the deep learning approach is an effective pedagogical strategy for strengthening students' conceptual understanding of qawāʿid, particularly in learning ṣharf with a focus on fiʿil muḍāriʿ.

The importance of qawāʿid in Arabic language learning further explains the improvement observed in this study. (Aprizal, 2021) emphasized that qawāʿid, together with aṣwāt and mufradāt, constitute one of the essential components of Arabic language learning. Similarly, (Larasaty, 2022) found that students' mastery of qawāʿid was significantly associated with their Arabic writing ability, whereas (Amir, 2023) reported its positive contribution to reading proficiency. This view is

consistent with (Mohammadi & Yousefi, 2019), who highlighted that grammar instruction plays a crucial role in developing learners' language accuracy and overall language competence. Taken together, these findings suggest that strengthening students' understanding of qawāʿid through the deep learning approach not only enhances grammatical competence but also supports the development of broader Arabic language skills, particularly in learning ṣharf with a focus on fiʿil muḍāriʿ.

The findings of the present study share similar pedagogical principles with those reported by (Maturedy, 2025), who found that the Al-Bidayah method promoted meaningful, collaborative, and reflective learning in Arabic grammar instruction. Similar learning characteristics were observed in this study, where students actively constructed their understanding of qawāʿid through collaborative discussions and problem-solving activities, reflecting the principles of student-centered learning (Loyens et al., 2020; Rehmat et al., 2022). However, unlike Maturedy's qualitative narrative study, the present study employed a quasi-experimental design to evaluate the effectiveness of the deep learning approach. These findings extend previous research by providing quantitative evidence that the deep learning approach effectively improves students' understanding of qawāʿid, particularly in learning ṣharf with a focus on fiʿil muḍāriʿ.

The findings of the present study further underscore the importance of active student engagement in Arabic language learning. These findings are consistent with those of (Jundi et al., 2023), who demonstrated that collaborative learning enhances students' participation and teamwork in learning qawāʿid. Recent studies have also highlighted the increasing integration of educational technology into Arabic language instruction. For example, (Khusnadin et al., 2025) identified deep learning, e-learning, and artificial intelligence as emerging research trends, while (Muharom, 2025) reported the potential of AI-based platforms to support the learning of nahwu and ṣharf. Similarly, (Bond et al., 2020) emphasized that meaningful student engagement is fostered through active participation, collaboration, and learner-centered instructional practices. Unlike these technology-oriented studies, the present study adopted the deep learning approach as a pedagogical framework rather than an artificial intelligence-based technology, demonstrating that meaningful learning and improved conceptual understanding of qawāʿid can be achieved through active, collaborative, and student-centered learning experiences.

The findings of the present study are further supported by (Ubaidillah et al., 2025), who demonstrated that the use of digital learning media, particularly Canva, enhanced students'

motivation, concentration, and engagement in Arabic language learning. Similarly, this study integrated visual learning media through YouTube-based instructional videos to facilitate students' understanding of fiʿil muḍāriʿ. The effectiveness of instructional videos is further supported by (Tseng, 2021), who reported that video-based learning promotes students' behavioral and cognitive engagement, thereby improving learning outcomes. In addition, (Huda & Ghufron, 2025) emphasized that cognitive factors, including memory, information processing, and learning strategies, play a crucial role in Arabic language learning. Collectively, these findings suggest that meaningful learning can be strengthened through the integration of appropriate pedagogical approaches, visual learning media, and cognitively engaging learning experiences.

The learning process began with YouTube-based audiovisual materials presenting contextual examples of fiʿil muḍāriʿ, enabling students to observe its grammatical patterns through both visual and verbal representations. After watching the videos, students analyzed the characteristics of fiʿil muḍāriʿ, including the use of ḥurūf al-muḍāraʿah and changes in verb forms according to the subject. The lesson then continued with collaborative discussions, problem-solving activities, and classroom presentations, during which students actively applied grammatical concepts to new examples. Throughout the learning process, the teacher served as a facilitator by guiding discussions and providing feedback, while web-based interactive games were used for formative assessment and group organization to sustain students' motivation and participation. Finally, students reflected on the key characteristics and meanings of fiʿil muḍāriʿ, enabling them to consolidate their understanding and develop a deeper conceptual understanding of qawāʿid beyond rote memorization.

The present study contributes to the growing body of research on Arabic language learning by providing quantitative evidence for the effectiveness of the deep learning approach in improving students' understanding of qawāʿid, particularly in learning ṣharf with a focus on fiʿil muḍāriʿ. Although previous studies have emphasized the importance of meaningful learning, collaborative learning, and technological innovation in Arabic language education (Jundi et al., 2023; Khusnadin et al., 2025; Maturedy, 2025; Silalahi et al., 2022), the present study extends this body of knowledge by demonstrating that meaningful learning can be achieved through the pedagogical principles of the deep learning approach without relying on artificial intelligence-based technologies. Furthermore, by employing a quasi-experimental design, this study provides empirical evidence that complements previous qualitative and conceptual studies and offers practical guidance for

Arabic language teachers on designing student-centered qawāʿid instruction that promotes conceptual understanding, active participation, and reflective learning.

The findings of the present study also have practical implications for Arabic language education. For Arabic language teachers, the deep learning approach offers an effective pedagogical framework for teaching qawāʿid by promoting active participation, collaboration, reflection, and contextual problem-solving rather than relying solely on rote memorization. The integration of audiovisual media, collaborative discussions, and formative assessment can further support students' conceptual understanding of Arabic grammar. In addition, madrasahs and curriculum developers may consider incorporating the principles of deep learning into Arabic language instruction to foster more meaningful, student-centered learning experiences.

Future research is recommended to examine the implementation of the deep learning approach across a wider range of Arabic language skills, grammatical topics, educational contexts, and larger sample sizes. Such studies would provide broader empirical evidence regarding the effectiveness and long-term sustainability of the deep learning approach in Arabic language education.

CONCLUSION

This study investigated the effect of the deep learning approach on students' understanding of qawāʿid in Arabic language learning, particularly in learning ṣharf with a focus on fiʿil muḍāriʿ. The findings demonstrated that the experimental group achieved significantly higher posttest scores than the control group, indicating that the deep learning approach effectively enhanced students' conceptual understanding of Arabic grammar. The integration of audiovisual media, collaborative discussions, reflective activities, and formative assessment created meaningful learning experiences that encouraged students to construct knowledge actively rather than rely solely on rote memorization. This study contributes empirical evidence that the deep learning approach, implemented as a pedagogical framework rather than an artificial intelligence-based technology, effectively enhances students' conceptual understanding of qawāʿid and promotes more meaningful Arabic language learning. The findings also offer practical implications for Arabic language teachers, madrasahs, and curriculum developers in designing student-centered grammar instruction. Future research is encouraged to examine the implementation of the deep learning approach across a wider range of Arabic language skills, grammatical topics, and educational

settings, and with larger sample sizes, to further strengthen the evidence for its effectiveness.

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