



## Efforts to Improve Students' Cognitive Learning Outcomes by Using Demonstration Methods in Fiqh Subjects on Hajj Subjects (Classroom Action Research on Class V Students of MI Al Istiqomah Katapang Bandung District)

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### ABSTRACT

This study seeks to enhance students' cognitive learning outcomes in Fiqh subjects focused on Hajj through the implementation of the demonstration method. In Indonesia, the education system continues to grapple with challenges, particularly regarding teaching methods that often lack variety. This research emphasizes the effectiveness of the demonstration method in Fiqh education, especially in relation to Hajj, with the goal of fostering a deeper understanding among students. The findings indicate that this method not only boosts student engagement but also reinforces conceptual comprehension and improves overall learning outcomes. Adopting a holistic approach, the study aims to cultivate insightful, empathetic, and socially responsible individuals capable of making meaningful contributions to society. Results indicate a progressive increase in student understanding of Hajj Fiqh throughout the cycles of learning facilitated by the demonstration method

## **INTRODUCTION**

The current state of education in Indonesia is still quite inadequate. This situation arises from the fact that, among the numerous teaching methods available, many teachers continue to rely solely on lecture and question-and-answer formats. Ideally, these methods should only serve as introductions to more interactive learning. Unfortunately, there remains a significant number of educators who are not familiar with the diverse range of instructional strategies that could enhance the learning experience (Orlich et al., 2010). Today, there are numerous methods that educators can employ to support a more effective learning process, ultimately providing students with a richer educational experience. When implemented correctly, these methods can foster a sense of joy in learning and encourage students' engagement with the subject matter (Hmelo-Silver, 2004).

Teachers play a crucial role in shaping the success of any educational initiative. Their influence is profound, impacting not only the delivery of knowledge but also the overall learning environment (Paniagua & Istance, 2018). Consequently, discussions surrounding curriculum reform—whether focused on the design and implementation of educational programs, the acquisition and integration of learning tools, or the assessment of the qualifications and effectiveness of educational personnel—inevitably lead back to the pivotal role of teachers (Otero et al., 2005). This recurring emphasis underscores the importance of educators within the educational landscape, highlighting their significance as the backbone of effective learning. Their expertise, dedication, and ability to connect with students are essential for fostering a thriving educational experience.

Human development, encompassing both physical and spiritual dimensions, is fundamentally rooted in the process of education. This process highlights that all initiatives aimed at enhancing students' cognitive capabilities are intrinsically linked to the development of their emotional intelligence and spiritual awareness (Eccles & Roeser, 2015). Education plays a critical role in nurturing these aspects, as it strives to elevate not only the intellectual acumen of students but also their emotional resilience and moral compass (Eccles & Roeser, 2015). Through a structured curriculum and experiential learning opportunities, students are trained to cultivate their physical skills, ensuring they acquire the necessary expertise and professional competencies required for their future roles in society (Jungnickel et al., 2009).

In this holistic approach to education, the aim is to foster well-rounded individuals—capable, empathetic, and socially responsible—who can contribute meaningfully to their communities. Each effort invested in their development is a step towards creating a more enlightened and harmonious society (Nasir et al., 2024).

In observing the phenomenon at MI Al-Istiqomah Katapang school, it is evident that there are several fundamental shortcomings in the learning process. The delivery of material and the methods employed in teaching are often ineffective. While teachers utilize a variety of learning approaches, not all methods are appropriate for every subject. For instance, in the study of fiqh,

specifically regarding Hajj, the demonstration method is particularly effective. This is because understanding the fiqh of Hajj requires practical examples and clear communication of the associated procedures and practices of worship to Allah SWT. It's essential for students to grasp not only the theoretical aspects but also the practical implementation of their worship. Therefore, employing the demonstration method can significantly enhance students' engagement and understanding in fiqh lessons related to Hajj.

emphasizes that demonstration serves as an effective teaching method that involves showcasing various types of goods, events, rules, and procedures related to a specific activity (Orlich et al., 2010). This method can be executed in two primary ways: through direct presentation, where the teacher actively engages with the material in front of the learners, or by utilizing relevant teaching media, such as videos, slides, or models, to enhance understanding of the subject matter being discussed (Deslauriers et al., 2019). By employing demonstrations, educators can illustrate complex concepts and processes, providing students with a clear visual representation that aids in comprehension and retention of the material.

## LITERATURE REVIEW

The Classroom Action Assessment was conducted in three cycles, starting with a planning phase, followed by careful observations. Each cycle focused on specific learning objectives, designing interventions, and implementing strategies in the classroom. Data was collected and analyzed to track student progress and engagement. By the end of the third cycle, the overall effectiveness of the strategies was assessed to inform future teaching practices. The planning phase at MI Al-Istiqomah Katapang utilized the demonstration method to facilitate discussions about Hajj. Educators outlined objectives, gathered materials, and designed engaging demonstrations to help students connect the teachings of Hajj to their lives. This phase is vital for identifying problems and developing solutions for better outcomes.

To enhance fiqh learning through practical methods, educators collaborated to create strategies aimed at boosting student engagement and academic success. Surveys and interviews were conducted to gather student insights, leading to targeted interventions like interactive workshops and technology integration. Observations revealed that fifth-grade students showed reluctance to engage with fiqh lessons, particularly on Hajj, perceiving the topic as dull. This disengagement reflected in their performance, with an average score of 75, below the Minimum Mastery Criteria (KKM) of 80.

The Classroom Action Research (CAR) model, developed by Sanford and Kemmis, provides a systematic approach to improving educational practices through cycles of planning, acting, observing, and reflecting. This model addresses specific classroom challenges to enhance teaching and learning outcomes (Kemmis, 1980, 1993; Sáez Bondía & Cortés Gracia, 2022).

Key aspects of the model include:

1. Iterative Cycles: Repeated cycles allow educators to implement changes, assess their impacts, and refine their strategies. For example, using

problem-based learning significantly improved student performance in mathematics.

2. Collaborative Approach: The model encourages collaboration among educators, students, and sometimes parents. This was evident in studies where teachers worked together to incorporate multimedia tools to enhance engagement.

3. Reflection: Reflection is crucial for educators to evaluate their effectiveness and gain insights into the learning process. Tools like Quizizz helped improve formative assessments through reflective practice.

4. Adaptability: The model is flexible and applicable across various contexts, such as language learning and vocational education. It has successfully enhanced digital literacy and student engagement using techniques like flipped classrooms.

Additionally, the demonstration method, structured in three cycles – Cycle I, II, and III – engages students in observing and practicing concepts, followed by reflection on the effectiveness of these demonstrations.

This research utilizes a qualitative approach, applying the lecture method within the CAR framework.

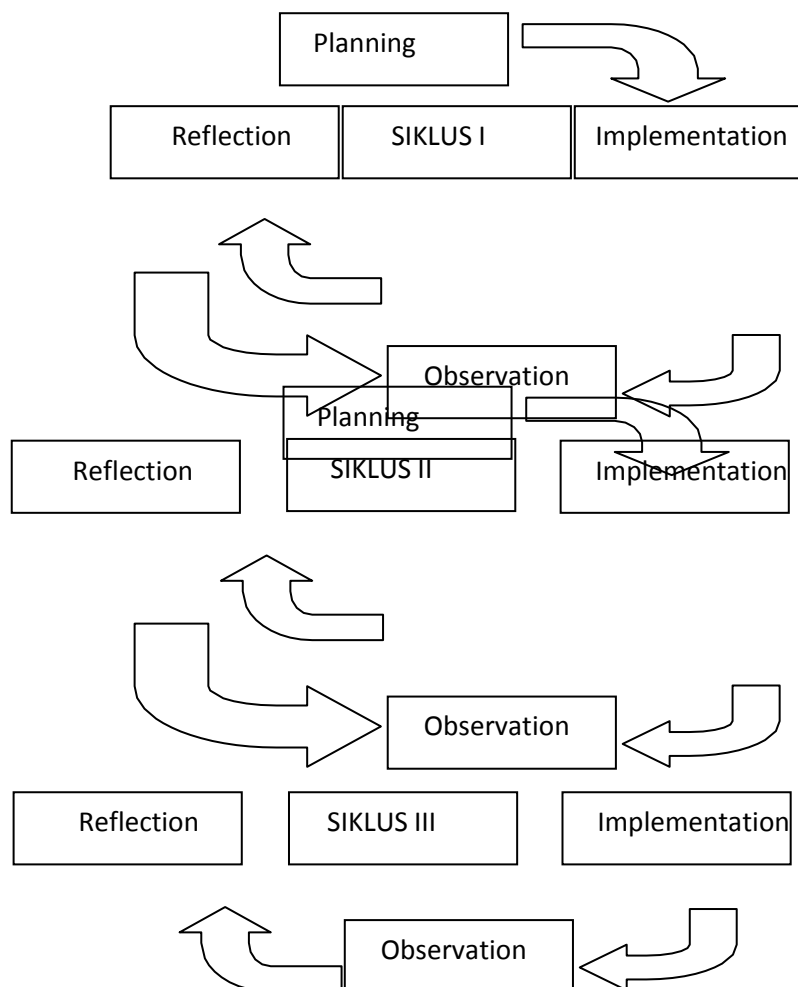


Figure 1. Conceptual Framework (Classroom Action Research MODEL Sanford dan Kemmis (1980, 1993))

The learning process using the demonstration method has proven effective for students. It follows a cyclical structure with three phases: Cycle I, Cycle II, and Cycle III. Each cycle includes planning, implementation, and observation, where students engage in hands-on practice to reinforce their understanding. The reflection phase at the end of each cycle allows educators and students to discuss outcomes and identify areas for improvement. Notably, students showed significant progress from Cycle I to Cycle II, indicating enhanced comprehension and application of concepts. The evaluation process tracks student progress across cycles, aiming for positive outcomes through assessments and observations (Kemmis, 1980, 1993; Sáez Bondía & Cortés Gracia, 2022). The demonstration method is especially effective for teaching the fiqh of Hajj to fifth graders. It engages students, clarifies complex concepts, and makes lessons relatable through practical examples. This hands-on approach fosters curiosity and motivation, aiding retention and comprehension of Islamic teachings. Overall, this method aligns with the goal of making religious education accessible and engaging for young learners.

## **METHODS**

This research adopts a qualitative approach, specifically leveraging the lecture method within the framework of Classroom Action Research (CAR). This study is grounded in the foundational principles of CAR, which emphasize the systematic observation and analysis of learning environments within a classroom context. In this framework, learning activities are intentionally designed and observed, allowing for a reflective practice that enhances both teaching and learning.

The research activities can be initiated by the teacher, who may introduce new concepts and methodologies, or they may evolve from student-led initiatives under the teacher's careful guidance and support. To gauge the initial understanding and knowledge levels of the respondents, a comprehensive pretest is administered. This pretest comprises a variety of assessment items, including multiple-choice questions alongside descriptive questions that encourage deeper engagement with the material.

The data gathered from the pretest is meticulously analyzed to identify key insights and trends. This analysis serves as the foundation for informing subsequent instructional actions and interventions in the next cycle of the research. By continuously iterating through cycles of planning, acting, observing, and reflecting, the research aims to foster an improved learning environment that effectively addresses the needs of the students.

The target population for this class action research study consists of the fifth-grade students at Madrasah Ibtidaiyah Al-Istiqomah Katapang, located in Bandung Regency. This particular research is aimed at examining the students' understanding and learning outcomes related to fiqh, with a specific emphasis on the chapter concerning Hajj, which is an integral part of the fifth-grade curriculum. To effectively evaluate the learning outcomes, the study will implement the demonstration method, which allows students to engage actively and apply their knowledge in practical scenarios.

In order to assess the effectiveness of this approach, a comprehensive measuring instrument will be developed to gauge student progress and comprehension in fiqh. The data analysis for this study will employ a combination of both test and non-test methods to provide a well-rounded view of student learning.

The research will be conducted in distinct cycles, with each cycle providing an opportunity to analyze and reflect on individual student scores. After each cycle, the data will be meticulously processed to yield insights into student performance. If the results from the first cycle do not meet the established criteria for success, a second cycle will be initiated to further refine the teaching approach and interventions. This iterative process will continue, with adjustments made as necessary, until the desired learning outcomes are achieved for all students involved in the study.

## **RESULTS**

The planning stage of the Classroom Action Assessment (PTK) focuses on the population of students at MI Al-Istiqomah Katapang. This phase involves utilizing the demonstration method specifically to facilitate discussions on the chapter regarding Hajj. During this planning, educators will outline their objectives, establish the necessary materials and resources, and design engaging demonstrations that illustrate key concepts related to the Hajj pilgrimage. Additionally, strategies will be developed to actively involve students in discussions, encouraging them to connect the teachings of Hajj to their own lives and experiences. The goal is to create an interactive learning environment that fosters understanding and appreciation of this significant aspect of Islamic practice.

In the context of a study aimed at enhancing fiqh (Islamic jurisprudence) learning through realistic and practical approaches, the planning phase plays a significant role. During this stage, educators and researchers collaborated to formulate comprehensive strategies designed to boost student engagement and academic achievement (Reyes et al., 2012). This process included conducting surveys and interviews with students to gather insights about their learning experiences and preferences. Additionally, the team reviewed current teaching methodologies and identified gaps that needed addressing. They then crafted targeted interventions, such as interactive workshops, hands-on activities, and the integration of technology, aimed at creating a more dynamic and engaging learning environment (Ajani, 2024).

Observations conducted at MI Al-Istiqomah have revealed that fifth-grade students exhibit a notable reluctance to engage with their fiqh lessons, particularly when it comes to the topic of Hajj. This subject, which covers the essential procedures and rituals associated with the Hajj pilgrimage, is often perceived as monotonous and uninteresting by the students. This lack of enthusiasm and engagement is reflected in their academic performance, as many students are achieving results that fall short of the Minimum Mastery Criteria (KKM), which is set at a score of 80. The average score among the students has been recorded at only 75.

In the Stages of Implementation, the learning process prior to utilizing the demonstration method, often referred to as the pre-cycle, focuses on the fiqh hajj material for fifth-grade students at MI Al-Istiqomah in Katapang, Bandung Regency. This initial phase involves several key steps aimed at assessing students' prior knowledge and readiness for the lesson. To begin, a series of targeted questions is distributed to the students. These questions are carefully designed to gauge their understanding of the essential concepts related to hajj in fiqh. Following the distribution of these questions, the responses from each student are collected and analyzed to calculate individual learning completeness.

Next, the overall performance of the class is evaluated by calculating the average score attained by all students on the assessment. This average score provides insight into the collective understanding of the students regarding the material. Additionally, classical learning completeness is determined to see how many students have successfully met the learning objectives set forth for this topic. Through this comprehensive approach, teachers can identify areas where students excel and where further instruction is needed, ultimately enhancing the effectiveness of the subsequent demonstration method in teaching the fiqh hajj material.

The Classroom Action Research (CAR) model, developed by Sanford and Kemmis, offers a systematic approach to enhancing educational practices through iterative cycles of planning, acting, observing, and reflecting. This model is widely utilized to tackle specific challenges within classroom settings, with the goal of improving both teaching and learning outcomes. Its cyclical nature facilitates the continual refinement and adaptation of teaching strategies based on observed results and reflective insights. Below are key aspects of the Sanford and Kemmis model as applied across various educational contexts (Kemmis, 1980, 1993).

Furthermore, the learning process utilizing the demonstration method has yielded impressive results among the students. This process is structured in a cyclical manner, encompassing three distinct cycles: Cycle I, Cycle II, and Cycle III. Each cycle consists of a systematic approach that begins with careful planning, followed by the implementation of the demonstration activities. During the implementation phase, students are actively engaged in observing the demonstrations and participating in hands-on practice, which reinforces their understanding of the concepts being taught. In the observation stage, both the educators and students assess the effectiveness of the demonstrations, noting what worked well and what could be improved (Boud et al., 2013; Kemmis, 1980, 1993; Plass & Pawar, 2020; Sáez Bondía & Cortés Gracia, 2022; Tschannen- Moran et al., 2000).

Finally, each cycle concludes with a reflection phase, where students and teachers discuss the outcomes of the learning experience. This reflection is crucial for identifying areas of improvement and enhancing instructional strategies. In Cycle II, it became evident that students demonstrated significant improvement compared to Cycle I, showcasing their ability to grasp concepts more effectively and apply their learning in practical situations. This iterative

process continues to build on their skills and understanding through each subsequent cycle.

The evaluation process is designed to assess student progress throughout the different learning stages, specifically from Cycle I to Cycle III. It is anticipated that by the conclusion of this comprehensive learning journey, students will demonstrate significant improvement and achieve positive learning outcomes. This progression will be evaluated through various assessments and observations, ensuring that each student's development is effectively monitored and supported.

The demonstration method proves to be an exceptionally effective and relevant approach for teaching the fiqh of Hajj to fifth-grade students. This interactive teaching strategy not only engages students but also enhances their understanding of complex concepts related to the rituals and significance of Hajj. By utilizing the demonstration method, teachers can present practical examples and real-life scenarios that illustrate the various aspects of Hajj, making the lessons more relatable and impactful.

Furthermore, this method encourages students to actively participate in the learning process, fostering a sense of curiosity and motivation to explore fiqh lessons further. Hands-on demonstrations allow students to visualize procedures and rituals, which can significantly aid in retention and comprehension. Therefore, the demonstration method is particularly well-suited for teaching the fiqh of Hajj, as it aligns with the educational goals of making Islamic teachings accessible and engaging for young learners.

## **DISCUSSION**

The Classroom Action Assessment was carried out over three distinct cycles, beginning with a thorough planning phase followed by careful observation (Mertler, 2009; Torrance & Pryor, 2001). Each cycle involved identifying specific learning objectives, designing appropriate interventions, and implementing these strategies in the classroom setting. Throughout this process, data was collected and analyzed to monitor student progress and engagement. By the conclusion of the third cycle, we evaluated the overall results and effectiveness of the strategies implemented, drawing insights from the observations made during each phase to inform future teaching practices.

The planning phase is an essential component of any project, as it lays the groundwork for success throughout the entire cycle. This phase involves a thorough assessment of the existing situation, wherein specific problems or areas requiring improvement are identified. It is crucial to clearly define these challenges to develop effective solutions (Heagney, 2016).

By meticulously planning out these strategies, the project set the stage for meaningful improvements in both student participation and understanding of the material, ultimately leading to higher levels of achievement in fiqh learning.

This situation raises a significant concern, especially considering that understanding fiqh is crucial for Muslims (Messick & Powers, 1996). Fiqh, or Islamic jurisprudence, is integral to many facets of life, encompassing economic, educational, and social dimensions. Its importance lies in its capacity to adapt

to evolving circumstances while upholding core moral and ethical principles. This flexibility is vital for tackling the contemporary challenges faced by Muslim communities (Norman & Ruhullah, 2024).

Knowledge of worship procedures, including those for Hajj, is essential for fulfilling religious obligations properly (Katz, 2004). It is crucial to thoroughly investigate and adopt innovative and effective teaching strategies that not only improve the overall learning experience but also actively engage students' curiosity and enthusiasm for the subject matter. By exploring diverse pedagogical approaches, we can create a dynamic classroom environment that fosters deeper understanding and encourages active participation, ultimately leading to a more meaningful educational journey for all students. (Barnes et al., 1994; Cooper & McIntyre, 1996). By employing more engaging and interactive instructional strategies, it may be possible to activate and utilize all components of the learning process, ultimately leading to improved outcomes for students in their fiqh education (Moslimany et al., 2024).

Key Aspects of the Sanford and Kemmis Model are Iterative Cycles. This model encompasses repeated cycles of planning, acting, observing, and reflecting. This iterative process empowers educators to implement changes, assess their impacts, and make necessary adjustments to enhance educational outcomes. For example, in a study aimed at improving mathematics learning outcomes, the model was employed to introduce problem-based learning, leading to significant enhancements in student performance throughout the cycles (Kemmis, 1980, 1993; Sáez Bondía & Cortés Gracia, 2022).

Collaborative Approach, this model promotes collaboration among educators, students, and occasionally parents to identify challenges and devise solutions. The collaborative aspect is highlighted in studies where teachers join forces to improve teaching methods, such as incorporating multimedia tools to boost student engagement in social learning (Kemmis, 1980; Tschannen- Moran et al., 2000).

Reflection is an essential component that enables educators to assess the effectiveness of their actions and gain a deeper understanding of the learning process. Engaging in reflective practice allows for the identification of successful strategies as well as areas that require improvement. This is exemplified by the use of digital platforms, such as Quizizz, to enhance formative assessment practices (Boud et al., 2013; Kemmis, 1980, 1993).

Adaptability to Various Contexts, the model is adaptable to different educational settings and subjects, from language learning to science education. For example, it has been applied to improve digital literacy in vocational schools and enhance student engagement through flipped classroom techniques (Kemmis, 1980; Plass & Pawar, 2020)

## **CONCLUSIONS AND RECOMMENDATIONS**

The implementation of the fiqh hajj learning model at MI Istiqomah has utilized a structured classroom action approach that consists of three distinct cycles, each designed to progressively build students' understanding. This method has demonstrated a marked improvement in the practical comprehension of the subject matter among sixth-grade students.

Throughout the learning process, various observations highlighted the challenges that students encountered while trying to grasp the intricate concepts related to hajj practices. Initially, many students struggled with the foundational aspects, reflecting a lack of familiarity with the religious significance and rituals associated with hajj. However, as the three cycles advanced, a noticeable transformation occurred.

Engagement levels among students began to rise significantly. Their involvement in classroom discussions not only increased in frequency but also in quality. This shift was evidenced by the way students were willing to share their thoughts and ask deeper questions pertaining to the subject matter. The atmosphere in the classroom became more dynamic and collaborative.

## **FURTHER STUDY**

Interestingly, the students exhibited a high level of enthusiasm and eagerness to learn, which played a crucial role in their academic development. Their participation evolved from passive listening to aggressive and proactive engagement. Students began to take ownership of their learning, often leading discussions and presenting insights about the hajj practices they had studied. This newfound confidence indicated a far deeper comprehension of the intricate details concerning the significance of hajj in Islamic teachings.

The fiqh hajj learning model proved to be effective in creating an interactive learning environment. By fostering opportunities for students to connect theoretical knowledge with practical applications, this approach not only enhanced their understanding of hajj but also deepened their appreciation of its importance within the broader context of their faith. Moving forward, it is recommended to continue utilizing this model while also integrating additional resources and activities that can further enrich the learning experience. Every research is subject to limitations; thus, you can explain them here and briefly provide suggestions to further investigations.

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## REFERENCES

- Ajani, O. A. (2024). Enhancing Pre-Service Teacher Education: Crafting a Technology-Responsive Curriculum for Modern Classrooms and Adaptive Learners. *Research in Educational Policy and Management*, 6(2), 209-229.
- Barnes, L. B., Christensen, C. R., & Hansen, A. J. (1994). *Teaching and the case method: Text, cases, and readings*. Harvard Business Press.
- Boud, D., Keogh, R., & Walker, D. (2013). *Reflection: Turning experience into learning*. Routledge.
- Cooper, P., & McIntyre, D. (1996). *Effective teaching and learning: Teachers' and students' perspectives*. McGraw-Hill Education (UK).
- Deslauriers, L., McCarty, L. S., Miller, K., Callaghan, K., & Kestin, G. (2019). Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom. *Proceedings of the National Academy of Sciences*, 116(39), 19251-19257. <https://doi.org/10.1073/pnas.1821936116>
- Eccles, J. S., & Roeser, R. W. (2015). School and community influences on human development. In *Developmental science* (pp. 645-728). Psychology Press.
- Heagney, J. (2016). *Fundamentals of project management*. Amacom.
- Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review*, 16, 235-266.
- Jungnickel, P. W., Kelley, K. W., Hammer, D. P., Haines, S. T., & Marlowe, K. F. (2009). Addressing competencies for the future in the professional curriculum. *American Journal of Pharmaceutical Education*, 73(8).
- Katz, M. (2004). The Hajj and the Study of Islamic Ritual. *Studia Islamica*, 98/99, 95-129.
- Kemmis, S. (1980). *Action Research in Retrospect and Prospect*.
- Kemmis, S. (1993). THE DEFINITION AND CHARACTER OF ACTION RESEARCH. *Educational Research: Volume One: Current Issues*, 1, 177.
- Mertler, C. A. (2009). *Action research: Teachers as researchers in the classroom*. Sage.
- Messick, B., & Powers, D. S. (1996). *Islamic Legal Interpretation. Muftis and Their*.
- Moslimany, R., Otaibi, A., & Shaikh, F. (2024). Designing a holistic curriculum: Challenges and opportunities in islamic education. *Journal on Islamic Studies*, 1(1), 52-73.
- Nasir, M., Rijal, M. K., Primarni, A., Lima, L., & Prastawa, S. (2024). Philosophical Foundations of Holistic Education in the 21st Century. *International Journal of Educational Narratives*, 2(6), 471-482.
- Norman, N. A., & Ruhullah, M. E. (2024). EXPLORING THE ETHICAL DIMENSIONS OF FIQH: THE ROLE OF THE SOUL IN ACHIEVING MAQASID AL-SHARI'AH. *Al-Shajarah: Journal of the International Institute of Islamic Thought and Civilization (ISTAC)*, 29(1), 47-77.
- Orlich, D. C., Harder, R. J., Callahan, R. C., Trevisan, M. S. T., & Brown, A. H. (2010). *Teaching strategies: A guide to effective instruction*. Wadsworth, Cengage Learning.

- Otero, V., Peressini, D., Meymaris, K. A., Ford, P., Garvin, T., Harlow, D., Reidel, M., Waite, B., & Mears, C. (2005). Integrating technology into teacher education: A critical framework for implementing reform. *Journal of Teacher Education*, 56(1), 8-23.
- Paniagua, A., & Istance, D. (2018). Teachers as designers of learning environments. *Educational Research and Innovation*, 17-42.
- Plass, J. L., & Pawar, S. (2020). Toward a taxonomy of adaptivity for learning. *Journal of Research on Technology in Education*, 52(3), 275-300.
- Reyes, M. R., Brackett, M. A., Rivers, S. E., White, M., & Salovey, P. (2012). Classroom emotional climate, student engagement, and academic achievement. *Journal of Educational Psychology*, 104(3), 700.
- Sáez Bondía, M. J., & Cortés Gracia, A. L. (2022). Action research in education: a set of case studies? *Educational Action Research*, 30(5), 850-864.
- Torrance, H., & Pryor, J. (2001). Developing formative assessment in the classroom: Using action research to explore and modify theory. *British Educational Research Journal*, 27(5), 615-631.
- Tschannen- Moran, M., Uline, C., Woolfolk Hoy, A., & Mackley, T. (2000). Creating smarter schools through collaboration. *Journal of Educational Administration*, 38(3), 247-272.