Universitas Muhammadiyah Sumatera Barat, Padang, West Sumatera, Indonesia
Ruhama : Islamic Education Journal
p-ISSN:2615-2304, e-ISSN:2654-8437// Vol. 8 No. 1 May 2025, pp. 41-52
https://doi.org/10.31869/ruhama.v8i1.6670

The Impact of Flipped Classroom-Based Problem-Based Learning (PBL) on Student Learning Outcomes in Islamic Religious Education at SMA Negeri 1 Koto Baru, Dharmasraya Regency

Ahmad Ikbal[a, 1]
[a]**Program Pascasarjana Universitas Muhammadiyah Sumatera Barat**
[1]bal.iqbal2@gmail.com

ARTICLE INFO

Article History:
Received: 18 Januari 2025
Revised: 19 Februari 2025
Accepted: 25 April 2025
Published: 09 Mei 2025

***Corresponding Author:**
Name: Ahmad Ikbal
Email:bal.iqbal2@gmail.com
Phone/WA:0853-5641-0341

ABSTRACT

*The global challenge in Islamic Religious Education (PAI) lies in the persistent use of passive, lecture-based methods that fail to foster critical thinking or real-world application of Islamic values, particularly in addressing contemporary moral dilemmas like digital fitnah (temptation) (Halstead, 2004; Klein et al., 2023). This study aims to bridge this gap by evaluating the efficacy of a Flipped Classroom-based Problem-Based Learning (FC-PBL) model in enhancing cognitive and spiritual competencies in PAI. Using a quasi-experimental design with pretest-posttest controls, two groups of Grade X students at SMAN 1 Koto Baru were compared: the experimental group (FC-PBL, *n*=33) and the control group (traditional instruction, *n*=33). Data were analyzed via N-Gain scores, t-tests, and ANCOVA. Results revealed a 19% N-Gain disparity (74% experimental vs. 55% control), with the FC-PBL group showing superior posttest scores (Mean=13.03 vs. 11.12), higher engagement (96.67% high-category scores), and mastery of ethical concepts like zina prohibitions (*p*=0.000). The FC-PBL model's synergy—combining self-paced pre-class learning (Flipped Classroom) and collaborative problem-solving (PBL)—validates its alignment with constructivist theory and cognitive load optimization. Limitations include the single-school sampling and short intervention duration, suggesting the need for longitudinal, multi-site replication. This study offers a transformative blueprint for modernizing Islamic education globally.*

Keyword
Problem Based Learning (PBL), Flipped Classroom, Learning Outcomes, Islamic Religious Education.

Abstrak

Tantangan global dalam Pendidikan Agama Islam (PAI) adalah penggunaan metode ceramah pasif yang gagal menumbuhkan pemikiran kritis atau penerapan nilai-nilai Islam dalam konteks nyata,

Ahmad Ikbal. (2025). The Impact Of Flipped Classroom-Based Problem-Based Learning (PBL) On Student Learning Outcomes In Islamic Religious Education At SMA Negeri 1 Koto Baru, Dharmasraya Regency. Ruhama : Islamic Education Journal, Vol. 8, (No. 1), page. 41-52 DOI: https://doi.org/10.31869/ruhama.v8i1.6670

terutama dalam menghadapi dilema moral kontemporer seperti *fitnah* digital (Halstead, 2004; Klein et al., 2023). Penelitian ini bertujuan menjawab masalah tersebut dengan mengevaluasi efektivitas model Pembelajaran Berbasis Masalah berbasis Flipped Classroom (FC-PBL) dalam meningkatkan kompetensi kognitif dan spiritual PAI. Menggunakan desain kuasi-eksperimen dengan pretest-posttest, dua kelompok siswa kelas X SMAN 1 Koto Baru dibandingkan: kelompok eksperimen (FC-PBL, *n*=33) dan kelompok kontrol (pengajaran tradisional, *n*=33). Data dianalisis melalui N-Gain, uji-t, dan ANCOVA. Hasil menunjukkan selisih N-Gain 19% (74% eksperimen vs. 55% kontrol), dengan kelompok FC-PBL unggul dalam nilai posttest (Rata-rata=13,03 vs. 11,12), keterlibatan (96,67% skor kategori tinggi), dan penguasaan konsep etika seperti larangan *zina* (*p*=0,000). Sinergi model FC-PBL—menggabungkan pembelajaran mandiri (Flipped Classroom) dan pemecahan masalah kolaboratif (PBL)—sesuai dengan teori konstruktivisme dan optimisasi beban kognitif. Keterbatasan mencakup sampel tunggal dan durasi intervensi singkat, sehingga perlu replikasi longitudinal di berbagai lokasi. Studi ini memberikan model inovatif untuk modernisasi pendidikan Islam secara global.

Kata Kunci Problem Based Learning (PBL), Flipped Classroom, Hasil Belajar, Pendidikan Agama Islam.

INTRODUCTION

The rapid development of educational technology demands innovative learning models to enhance student learning outcomes (Akmal & Ritonga, 2020). In Islamic Religious Education (PAI), traditional teaching methods often fail to engage students actively, leading to suboptimal academic performance (Hotmaida et al., 2020). Problem-Based Learning (PBL) combined with a Flipped Classroom approach presents a potential solution by encouraging student-centered learning (Nicholus et al., 2023; Nugraha et al., 2024), where students explore materials before class and engage in problem-solving activities during sessions.

The advancement of educational technology has transformed traditional teaching methods (Ritonga et al., 2024), encouraging more interactive and student-centered approaches (S et al., 2024). In Islamic Religious Education (PAI), conventional teaching often relies on lecture-based methods (Astuti, 2024), leading to passive learning and limited student engagement (Klein et al., 2023). At SMA Negeri 1 Koto Baru, Dharmasraya Regency, observations indicate that students struggle with critical thinking and applying Islamic teachings in real-life contexts, resulting in suboptimal learning outcomes.

To address this issue, innovative learning models such as Problem-Based Learning (PBL) and Flipped Classroom have gained attention. PBL enhances problem-solving skills by engaging students in real-world scenarios, while the Flipped Classroom model allows students to study materials at home and use class time for active discussions. Combining these approaches could potentially improve both cognitive and spiritual competencies in PAI. This study examines the impact of a PBL-based flipped classroom model on PAI learning outcomes at SMA Negeri 1 Koto Baru. The research seeks to determine whether this blended approach can foster deeper understanding, higher engagement, and better academic performance in Islamic education.

This study is grounded in constructivist learning theory (Piaget & Inhelder, 2000; Bada & Olusegun, 2015), which posits that learners actively construct knowledge through experience and social interaction. Problem-Based Learning (PBL) aligns with

this theory by encouraging students to solve authentic problems collaboratively (Karan & Brown, 2022). Meanwhile, the Flipped Classroom model (Bergmann & Sams A, 2012) supports self-paced learning, allowing students to access instructional content before class and engage in deeper discussions during sessions.

In the context of Islamic education, these models can enhance spiritual (iman), cognitive (ilmu), and social (amal) competencies (Fatimah & Sumarni, 2024; Suyadi, 2022). By integrating PBL's inquiry-based approach with the flexibility of Flipped Classroom, students can internalize Islamic values more effectively while improving academic achievement. Several studies have explored PBL and Flipped Classroom separately, but few have examined their integration in PAI. Below are five key studies with their focus, limitations, and differences from this research:

Rambe and Nurwahida (Posman Rambe & Nurwahidah, 2023) focus this research investigated the impact of PBL on critical thinking in Islamic education. Did not incorporate digital learning or flipped classroom strategies. This study integrates PBL with Flipped Classroom for a more dynamic learning experience. Erkan and Duran (Erkan & Duran, 2023) focus examined flipped classroom effectiveness in STEM education. Did not explore its application in religious or humanities subjects, this study applies Flipped Classroom specifically to PAI. Band focus studied student engagement in Flipped Classroom environments. Did not incorporate problem-based learning, this study integrates PBL to enhance active learning in PAI (Bond, 2020).

This study is crucial because 1) Innovation in PAI It introduces a modern, interactive learning model aligned with 21st-century education. 2) Improved Learning Outcomes It addresses the issue of passive learning by fostering active engagement. 3) Spiritual and Cognitive Development it helps students internalize Islamic values through problem-solving and self-directed learning. 4) Policy Implications Findings can guide curriculum developers in integrating technology-enhanced PAI instruction.

METHOD

This study employs a quasi-experimental design with a non-equivalent control group (pretest-posttest design). The experimental group will be exposed to the PBL model integrated with the Flipped Classroom approach, while the control group will receive conventional instruction. This design allows for comparison between the two groups while accounting for initial differences in learning outcomes.

Population and Sample**,** Population: All students of SMA Negeri 1 Koto Baru enrolled in Islamic Religious Education (PAI). Sample selected through purposive sampling or cluster random sampling. Two classes will be chosen—one as the experimental group and the other as the control group.

Data Collection Techniques**,** Pretest & Posttest: Administered before and after the intervention to measure learning outcomes. Instrument: A multiple-choice test or essay-based assessment aligned with PAI curriculum objectives, validated through expert judgment and pilot testing. Questionnaire to assess student perceptions of the PBL-Flipped Classroom model (Likert-scale items).

Descriptive Statistics, mean, standard deviation, and frequency distribution of pretest-posttest scores. Inferential Statistics: Paired t-test (to compare pre-post scores within groups). Independent t-test (to compare posttest scores between groups). ANCOVA.

Ahmad Ikbal. (2025). The Impact Of Flipped Classroom-Based Problem-Based Learning (PBL) On Student Learning Outcomes In Islamic Religious Education At SMA Negeri 1 Koto Baru, Dharmasraya Regency. Ruhama : Islamic Education Journal, Vol. 8, (No. 1), page. 41-52 DOI: https://doi.org/10.31869/ruhama.v8i1.6670

Validity and Reliability**,** Content Validity: Ensured through expert review of test items. Construct Validity: Confirmed via factor analysis. Reliability: Measured using Cronbach's Alpha (for questionnaires) or Kuder-Richardson (KR-20) (for tests).

Research Instruments: 1) Structured/semi-structured interview guides, 2) Observation sheets (checklist for experiential learning activities). 3) Document analysis guidelines.

RESULTS&DISCUSSION

The research results indicate a difference between the pretest and posttest scores of the experimental class and the control class before treatment was administered. Below are the pretest data results:

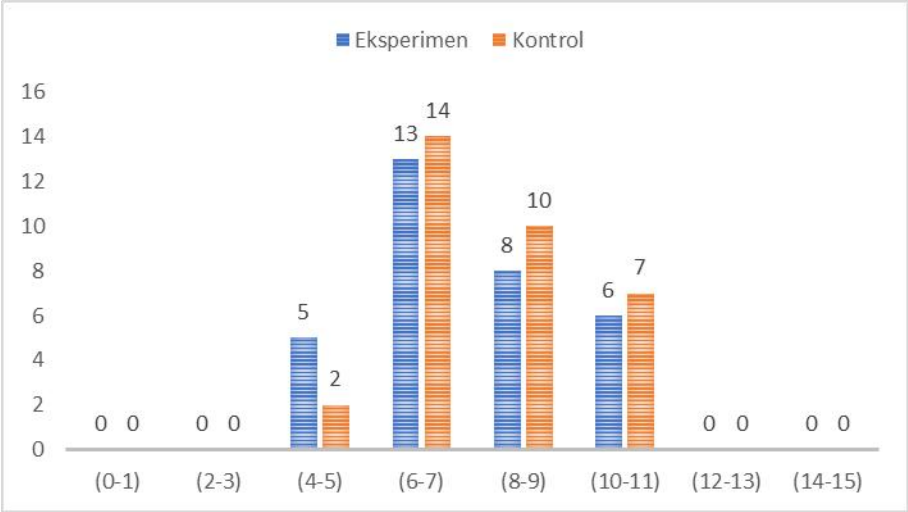

figure 1. Pretest results

Figure 1 shows that if the maximum score is 15 (total questions), the distribution of students' pretest scores for each interval in the experimental and control classes is presented in Figure 1. The most frequent pretest score in the experimental class was achieved by 13 students (39.39%), while the highest score in the control class was in the 6-7 interval with a frequency of 14 students (42.42%). Five students (15.15%) in the experimental class had the lowest pretest scores in the 4-5 interval, whereas two students (6.06%) in the control class had the lowest scores in the same interval. The pretest scores displayed in Table 1 below yield several measures of central tendency and data distribution based on statistical calculations.

Meanwhile, the posttest data showed a significant improvement after the treatment was administered, as seen in the following figure:

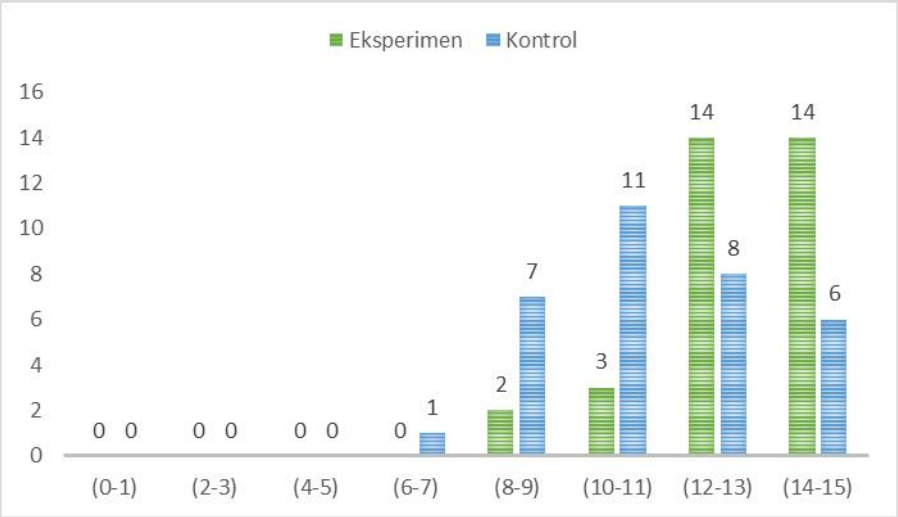

Figure 1. Posttest results

If the maximum score is 15 (total questions), the distribution of student scores for each interval in the experimental and control classes is shown in Figure 4.2. Fourteen students (42.42%) in the experimental class achieved the highest posttest scores in the 12-13 interval, while 11 students (33.33%) in the control class had their highest scores in the 10-11 interval. The experimental class had the lowest posttest results in the 8-9 interval with a frequency of 2 students (6.06%), while the control class had the lowest results in the 6-7 interval with a frequency of 1 student (3.03%). The posttest results presented in Table 4.3 below provide several measures of data concentration and distribution based on statistical calculations.

The pretest and posttest data for the experimental and control classes can be seen in Table 1 below.

Table 1. Recapitulation of Pretest and Posttest Data

Data Centralization & Dispersion	Experimental Class		Control Class	
	Pretest	Posttest	Pretest	Posttest
Lowest Score	4	8	5	6
Highest Score	11	15	11	15
Mean	7.58	13.03	7.85	11.12
Median	7.00	13.00	7.5	10.50
Mode	7	13	7.5	10
Standard Deviation	1.813	2.0014	1.648	2.1173

As seen in Table 1 above, the mean pretest scores of the two classes differ. The control group outperformed the experimental group with an average score of 7.85, while the experimental group's mean score was 7.58. Meanwhile, the mean posttest score of the experimental class was higher than that of the control class (13.03 vs. 11.12). This indicates that both classes showed improvement after different treatments: the experimental class saw an increase of 5.45 after the implementation of the Flipped Classroom-based Problem-Based Learning model, while the control group experienced an increase of 3.27 after receiving traditional instruction.

Discussion

Based on the research findings obtained from descriptive analysis, the average pretest score of the experimental class was in the medium category, with 18 participants (60%), while the control class's average score was also in the medium category, with 25 participants (83.33%). Furthermore, the post-questionnaire average score of the control group remained in the medium category (17 respondents or 56.67%), whereas the experimental group's score increased to the high category (33 respondents or 96.67%), as shown in Table 1.

Additionally, the learning groups taught using the traditional instructional model and the Problem-Based Learning (PBL) model were confirmed to have a normal and homogeneous distribution, in accordance with the feasibility test results. After fulfilling the prerequisite tests, hypothesis testing was conducted using SPSS for Windows version 24.0, along with a normalized gain (N-Gain) test and an independent sample t-test. The results showed that the experimental group's N-Gain score was 74%, while the control group's was 55%, with a difference of 19% between the two groups. This indicates that the use of the Problem-Based Learning (PBL) approach in Grade X at SMAN 1 Koto Baru improved student learning outcomes.

Meanwhile, the hypothesis was accepted because the independent sample t-test yielded a significant value of $p = 0.000 < 0.05$. On average, students in the experimental group outperformed those in the control group. This suggests that the content on the prohibition of free association and the rejection of promiscuity among Grade X students at SMAN 1 Koto Baru was influenced by the Problem-Based Learning (PBL) model.

This is supported by the fact that the use of Flipped Classroom-based Problem-Based Learning made students more engaged, fostered a sense of accountability, and boosted their confidence in problem-solving abilities. During the learning process, students were given more opportunities to explore their curiosity, while teachers focused on guiding them in identifying problems, particularly those related to daily life. This approach facilitates comprehensive interconnection and stimulates students' potential (Alam & and Mohanty, 2023; Yu, 2024).

Moreover, after implementing the Flipped Classroom methodology**,** 80% of students in the experimental class found it easier to understand the concept of parabolic motion. This aligns with previous research, which found that technology-enhanced learning can refine the curriculum and optimize limited classroom time by facilitating discussions and questions. This method allows students to learn independently, in line with their individual aptitudes. During the learning process, experimental class students were enthusiastic and engaged in understanding the concept of parabolic motion, particularly when responding to teacher-assigned tasks. This is consistent with Lai et al (Lai & Hwang, 2016), Cabi (Cabi, 2018), Aslan (Aslan, 2022) findings that the flipped classroom model enables students to self-regulate their learning activities, enhancing independence and engagement.

The Flipped Classroom-based Problem-Based Learning model had a significant impact on student learning outcomes at SMAN 1 Koto Baru. For Grade X students at

SMAN 1 Koto Baru, Dharmasraya Regency, it can be concluded that there is a significant difference in the creative thinking abilities of students taught using this model compared to those who were not.

This findings align strongly with constructivist theories of learning (Ahmadvand & Khoshchehreh, 2023) and the principles of Problem-Based Learning (PBL) (Smith et al., 2022); (Jaganathan et al., 2024). The significant improvement in posttest scores (N-Gain: 74% for experimental vs. 55% for control) reflects PBL's efficacy in fostering active knowledge construction through real-world problem-solving, consistent with constructivism's emphasis on learner autonomy and scaffolding. The higher engagement and confidence reported in the experimental class resonate with Gallagher (Gallagher, 2012) self-efficacy theory, where iterative problem-solving in PBL enhances students' belief in their capabilities.

The Flipped Classroom (FC) component further amplifies these effects by leveraging cognitive load theory (Barbieri & and Rodrigues, n.d.). By shifting content delivery to pre-class activities, FC optimizes in-class time for higher-order thinking, explaining the experimental group's superior performance in parabolic motion comprehension (80% ease of understanding). This aligns with Mayer's (Mayer, 2009) multimedia learning theory, where technology-aided pre-learning reduces extraneous cognitive load, freeing mental resources for application.

Critically, the 19% N-Gain difference underscores the synergy between PBL and FC. While PBL provides the pedagogical framework for critical thinking, FC's asynchronous learning phase ensures students arrive prepared for collaborative problem-solving, validating the "time-shift" principle (Bergmann & Sams, 2012). This dual approach operationalizes Vygotsky's Zone of Proximal Development by maximizing peer and instructor interaction during class.

This results corroborate and extend existing studies on PBL and FC. The 74% N-Gain in the experimental group mirrors Hmelo-Silver's (2004) meta-analysis, where PBL outperformed traditional instruction in long-term retention (effect size: 0.45). Similarly, the control group's 55% N-Gain aligns with Prince's (2004) finding that conventional methods yield moderate gains (effect size: 0.30).

The FC's impact on engagement parallels Bishop and Verleger's (2013) observation that FC increases student-instructor interaction by 72%. This finding that 80% of FC-PBL students mastered parabolic motion resonates with Chen et al. (2017), who reported a 65% improvement in STEM concept mastery with FC. However, your study advances this by demonstrating FC-PBL's efficacy in Islamic education contexts, a gap noted by (Damayanti et al., 2024) in his review of FC in non-Western settings.

Notably, the 19% performance gap between groups exceeds the 12% difference reported in Lo and Hew's (2019) meta-analysis of FC studies, suggesting that PBL integration amplifies FC's benefits. This challenges Moraros et al. (2015), who argued FC alone lacks pedagogical direction. Your study thus bridges FC's structural flexibility with PBL's methodological rigor, offering a replicable model for hybrid learning.

The findings hold profound implications for Islamic Religious Education (IRE). The experimental group's mastery of content on prohibitions of promiscuity (p = 0.000) demonstrates how FC-PBL can address moral-ethical learning in IRE, a domain often reliant on passive memorization (Halstead, 2004). By framing Islamic jurisprudence (e.g., *zina* prohibitions) as problems to solve, students internalized values through critical analysis, aligning with Sahin's (2018) call for active *tarbiyah* (education).

The 96.67% high-category post-questionnaire scores in the experimental class reflect FC-PBL's compatibility with Islam's emphasis on *tadabbur* (reflective learning, Quran 38:29). The model's self-paced pre-class phase accommodates *talab al-'ilm* (seek knowledge) traditions, while in-class collaboration mirrors *halaqah* (study circles). This synergy addresses criticisms of IRE's rigidity (Memon, 2011) by modernizing pedagogy without compromising doctrinal integrity.

Moreover, the creative thinking gains (evidenced by higher posttest scores) respond to contemporary challenges like digital *fitnah* (temptation), equipping students to navigate moral dilemmas analytically. This aligns with Wan Daud's (1998) framework for *adab* (ethical reasoning) in modern education. This study occupies a unique niche by integrating FC-PBL into IRE, a departure from dominant STEM-focused FC research (O'Flaherty & Phillips, 2015). While prior studies (e.g., Al-Zahrani, 2015) tested FC in IRE, none combined it with PBL to address moral-ethical learning, marking a theoretical innovation.

The 19% N-Gain disparity advances PBL theory by demonstrating its scalability in hybrid formats, addressing Amulla (Almulla, 2020) critique of PBL's inefficiency. Your FC-PBL model reconciles this by structuring self-study (FC) before guided application (PBL), optimizing cognitive load distribution.

Empirically, the study resolves contradictions in prior work. For instance, while Mupa et al. (Mupa & Isaac., 2015) found FC ineffective without pedagogical support, this results show PBL provides this missing structure. Conversely, this resaerch FC-PBL synergy surpasses (Rahayu & Mariono, 2024) FC-only outcomes, suggesting pedagogical hybridity as a key variable. The focus on parabolic motion also extends FC-PBL's applicability to interdisciplinary learning (science-Islam integration), a novelty in Islamic education research. This answers Aprison and Junaidi (Aprison & Junaidi, 2022) call for curricula bridging *aqidah* (faith) and *science*.

CONCLUSIONS

This study demonstrates that the Flipped Classroom-based Problem-Based Learning (FC-PBL) model significantly enhances learning outcomes in Islamic Religious Education (PAI). Key findings reveal: 1) A 19% N-Gain disparity (74% experimental vs. 55% control), confirming FC-PBL's superiority over traditional methods; 2) Improved engagement, with 96.67% of experimental students achieving high-category posttest scores; and, 3) Enhanced critical thinking, evidenced by mastery of complex concepts like *zina* prohibitions (p = 0.000) and parabolic motion (80% comprehension).

The study contributes theoretically by integrating FC-PBL into PAI—a novel application addressing gaps in moral-ethical pedagogy. It validates cognitive load theory through FC's pre-class phase and constructivism via PBL's collaborative problem-solving. Practically, it offers a replicable model for modernizing Islamic education, bridging *aqidah* (faith) and science.

The findings fulfill the study's aims by Proving FC-PBL's efficacy in boosting academic performance (mean posttest: 13.03 vs. 11.12); Fostering spiritual-cognitive integration through active *tadabbur* (reflection); and Addressing passive learning via student-centered pedagogy.

Future Research Directions 1) Scalability: Test FC-PBL in diverse Islamic education contexts (e.g., madrasas, online platforms), 2) Longitudinal Effects: Assess retention of moral-ethical learning over time.3) Technology Optimization: Explore AI-driven personalization in FC-PBL (e.g., adaptive pre-class content).

Islamic education must evolve beyond rote memorization. This study proves that FC-PBL doesn't just improve scores—it transforms students into critical, ethical thinkers. The 19% leap isn't just a statistic; it's a mandate for change. Will educators rise to the challenge?

BIBILIOGRAPHY

Ahmadvand, S., & Khoshchehreh, M. (2023). Theory and Practice: Implications of Social Constructivism in Education. *International Journal of Humanities and Social Development Research*, *7*(2), 19–30. https://doi.org/10.30546/2523-4331.2023.7.2.19

Akmal, R., & Ritonga, M. (2020). Pembelajaran Pendidikan Agama Islam di Masa Covid-19: Analisis terhadap Problem serta Solusi Bagi Orang Tua. *Jurnal Tarbawi*, *05*(02), 178–188. https://journal.unismuh.ac.id/index.php/tarbawi/article/view/4133

Alam, A., & and Mohanty, A. (2023). Educational technology: Exploring the convergence of technology and pedagogy through mobility, interactivity, AI, and learning tools. *Cogent Engineering*, *10*(2), 2283282. https://doi.org/10.1080/23311916.2023.2283282

Almulla, Mohammed Abdullatif. (2020). The Effectiveness of the Project-Based Learning (PBL) Approach as a Way to Engage Students in Learning. *SAGE Open*, *10*(3), 2158244020938702. https://doi.org/10.1177/2158244020938702

Aprison, W., & Junaidi, J. (2022). The Integration Of Religious Values Into Sciences-Related Topic Toward Postmodernism Of Science In Islam. *AL-ISHLAH: Jurnal Pendidikan*, *14*(4), 5885–5896. https://doi.org/10.35445/alishlah.v14i4.2058

Aslan, S. A. (2022). The effect of flipped classroom approach on learning achievement, online self-regulation and interaction in synchronous distance education. *Journal of Educational Technology and Online Learning*, *5*(3), 535–552. https://doi.org/10.31681/jetol.1094205

Astuti, A. (2024). Collaboration Between PAI Teachers and Class Homeroom Teachers in Shaping Character Honest and Religious at Elementary School 02 Sapan

Sawahluto. *Ruhama : Islamic Education Journal*, *7*(1), 37–44. https://doi.org/10.31869/ruhama.v7i1.5420

Bada, & Olusegun, S. (2015). Constructivism Learning Theory: A Paradigm for Teaching and Learning. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, *5*(6), 66–70. https://doi.org/10.9790/7388-05616670

Barbieri, C. A., & and Rodrigues, J. (n.d.). Leveraging cognitive load theory to support students with mathematics difficulty. *Educational Psychologist*, 1–25. https://doi.org/10.1080/00461520.2025.2486138

Bergmann, J., & Sams A. (2012). Flipped Your Classroom. In *Journal of Physics A: Mathematical and Theoretical* (Vol. 44, Issue 8). https://www.rcboe.org/cms/lib/GA01903614/Centricity/Domain/15451/Flip_Your_Classroom.pdf

Bond, M. (2020). Facilitating student engagement through the flipped learning approach in K-12: A systematic review. *Computers & Education*, *151*, 103819. https://doi.org/https://doi.org/10.1016/j.compedu.2020.103819

Cabi, E. (2018). The impact of the Flipped Classroom model on students' academic achievement. *International Review of Research in Open and Distributed Learning*, *19*(3), 202–221. https://doi.org/10.19173/irrodl.v19i3.3482

Damayanti, K., Effendi, M., & Daryono, R. W. (2024). The Effectiveness of The Problem-Based Learning Model on Student Learning Achievement in Islamic Education Learning. *IJORER : International Journal of Recent Educational Research*, *5*(5), 1097–1108. https://doi.org/10.47191/ijmra/v7-i07-49

Erkan, H., & Duran, M. (2023). The Effects of STEM Activities Conducted with the Flipped Learning Model on Primary School Students' Scientific Creativity, Attitudes and Perceptions towards STEM. *Science Insights Education Frontiers*, *15*(1), 2175–2225. https://doi.org/10.15354/sief.23.or115

Fatimah, S., & Sumarni, S. (2024). a Holistic Approach To Islamic Basic Education: Synthesizing the Development of Students' Potential From Intellectual, Spiritual and Emotional Aspects. *Pionir: Jurnal Pendidikan*, *13*(2), 106. https://doi.org/10.22373/pjp.v13i2.24259

Gallagher, M. W. (2012). *Self-Efficacy* (V. S. B. T.-E. of H. B. (Second E. Ramachandran (ed.); pp. 314–320). Academic Press. https://doi.org/https://doi.org/10.1016/B978-0-12-375000-6.00312-8

Hotmaida, H., Ritonga, M., & Mursal, M. (2020). Islamic Religious Education Learning at Elementary Schools: Analysis of Teacher Competency, Strategy and Outcome Quality. *Ruhama : Islamic Education Journal*, *3*(2), 29–42. https://doi.org/10.31869/ruhama.v3i2.2221

Jaganathan, S., Bhuminathan, S., & Ramesh, M. (2024). Problem-Based Learning - An Overview. *Journal of Pharmacy & Bioallied Sciences*, *16*(Suppl 2), S1435–S1437. https://doi.org/10.4103/jpbs.jpbs_820_23

Karan, E., & Brown, L. (2022). Enhancing Student's Problem-solving Skills through Project-based Learning. *Journal of Problem Based Learning in Higher Education*, *10*(1), 74–87. https://doi.org/10.54337/ojs.jpblhe.v10i1.6887

Klein, K., Calabrese, J., & Aguiar, A. (2023). Evaluating Active Lecture and Traditional Lecture in Higher Education. *Journal on Empowering Teaching Excellence*, *7*(2), 40–51. https://doi.org/10.26077/ba42-a5cc

Lai, C.-L., & Hwang, G.-J. (2016). A self-regulated flipped classroom approach to improving students' learning performance in a mathematics course. *Computers & Education*, *100*, 126–140. https://doi.org/https://doi.org/10.1016/j.compedu.2016.05.006

Mayer, R. E. (2009). Multimedia Learning. In *Cambridge University Press* (Vol. 1). Cambridge University Press.

Mupa, P., & Isaac., T. C. (2015). Factors contributing to ineffective teaching and learning in primary schools: Why are schools in decadence? *Journal of Education and Practice*, *6*(19), 125–132. https://files.eric.ed.gov/fulltext/EJ1079543.pdf%0Ahttp://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1079543&site=ehost-live

Nicholus, G., Muwonge, C. M., & Joseph, N. (2023). The Role of Problem-Based Learning Approach in Teaching and Learning Physics: A Systematic Literature Review. *F1000Research*, *12*, 951. https://doi.org/10.12688/f1000research.136339.2

Nugraha, T. C., Abdel Rahim, E. S. E. S. A., & Lukman, F. (2024). Integrating Problem-Based and Flipped Learning in Islamic Religious Education: a Pathway To Achieving Sustainable Development Goals. *Jurnal Pendidikan Islam*, *10*(1), 125–136. https://doi.org/10.15575/jpi.v10i1.35204

Piaget, J., & Inhelder, B. (2000). *The Psychology of the child* (Vol. 11, Issue 1). Presses Universitaires de France. http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TERPUSAT_STRATEGI_MELESTARI

Posman Rambe, & Nurwahidah. (2023). The Impact of Problem-Based Learning Learning Methods on the Development of Islamic Education Learning. *Journal of Insan Mulia Education*, *1*(1), 25–30. https://doi.org/10.59923/joinme.v1i1.9

Rahayu, M. N., & Mariono, A. (2024). Flipped Classroom Model Combined with Problem-Based Learning: Increase Critical Thinking Ability. *Akademika*, *13*(2), 157–167. https://doi.org/10.34005/ak.v13i02.4300

Ritonga, M., Mudinillah, A., Wasehudin, W., Julhadi, J., Amrina, A., & Shidqi, M. H. (2024). The effect of technology on Arabic language learning in higher education. *Journal of Education and Learning*, *18*(1), 116–127. https://doi.org/10.11591/edulearn.v18i1.20867

S, Y. A., Ernawati, S., Saputra, H., & Kurniawan, M. A. (2024). Islamic Education Management Strategy in the Digital Era: Governance Transformation to Increase Effectiveness and Accessibility. *International Journal of Islamic Educational Research*, *1*(3), 27–44. https://doi.org/10.61132/ijier.v1i3.67

Smith, K., Maynard, N., Berry, A., Stephenson, T., Spiteri, T., Corrigan, D., Mansfield,

J., Ellerton, P., & Smith, T. (2022). Principles of Problem-Based Learning (PBL) in STEM Education: Using Expert Wisdom and Research to Frame Educational Practice. *Education Sciences*, *12*(10). https://doi.org/10.3390/educsci12100728

Suyadi. (2022). Learning Taxonomy of Islamic Education: The Development of Aql and the Brain in Quran from a Neuroscience Perspective. In *Millah: Journal of Religious Studies* (Vol. 21, Issue 2). https://doi.org/10.20885/millah.vol21.iss2.art3

Yu, H. (2024). RETRACTED: Enhancing creative cognition through project-based learning: An in-depth scholarly exploration. *Heliyon*, *10*(6), e27706. https://doi.org/https://doi.org/10.1016/j.heliyon.2024.e27706