E-ISSN : 2828-0903
P-ISSN : 2827-9077
IJESS INDONESIAN JOURNAL OF EDUCATION AND SOCIAL STUDIES

Indonesian Journal of Education and Social Studies (IJESS)
Vol. 05, No. 01 (2026), p. 119-133
Available online at https://ejournal.unuja.ac.id/index.php/IJESS

Beyond Teacher Competence: Uncovering the Key Determinants of Student Learning and Achievement of Islamic Religious Education Subjects

Muhammad Akmansyah[1]*, Indah Aprilia Putri[2], Nurnazli[3], Amin Mujahid[4]
[1,2,3]Universitas Islam Negeri Raden Intan Lampung, Indonesia
[4]The Islamic University of Madinah, Saudi Arabia

*Corresponding Author: akmansyah@radenintan.ac.id
http://doi.org/10.33650/ijess.v5i1.13146
Received: October 2025, Revised: December 2025, Accepted: February 2026

Abstract:
This study examines the extent to which teachers' professional competence influences students' learning activities and cognitive learning outcomes in Islamic Religious Education (PAI). The Research was motivated by the widespread assumption in educational policy that improving teacher competence is a primary pathway to enhancing learning quality. This assumption has received mixed empirical support. Employing a descriptive quantitative design, data were collected from 157 eleventh-grade students at a public senior high school in Indonesia using questionnaires, academic documentation, and classroom observations. Teachers' professional competence and students' learning activities were measured through Likert-scale instruments, while cognitive learning outcomes were obtained from school records. Data were analyzed using descriptive statistics, hypothesis testing, and simple and multiple linear regression. The findings reveal that teachers' professional competence has no statistically significant effect on students' learning activities or cognitive learning outcomes. Regression models demonstrate very low explanatory power, indicating that professional competence accounts for only a minimal proportion of variance in both dependent variables. Visual analysis using scatter plots further confirms the absence of meaningful linear relationships. These results suggest that student engagement and achievement in PAI are shaped by broader factors beyond teachers' professional competence alone. The study highlights the importance of adopting a more holistic perspective on educational effectiveness that integrates student agency, classroom interaction, and contextual learning environments.
Key Words: *Teacher Professional Competence, Learning Activities, Cognitive Learning Outcomes*

Please cite this article in APA style as:
Akmansyah, M., Putri, I. A., Nurnazli, & Mujahid, A. (2026). Beyond Teacher Competence: Uncovering the Key Determinants of Student Learning and Achievement of Islamic Religious Education Subjects. *Indonesian Journal of Education and Social Studies*, *5*(1), 119-133.

INTRODUCTION

The effectiveness of education has long been associated with the professional competence of teachers, positioning teachers as the primary agents of learning quality and student achievement. In many national education systems, including Indonesia, policies and reform initiatives continue to emphasize teacher certification, professional development, and competency standards as key strategies for improving educational outcomes (Barnes, 2021; Handayani et al., 2023; Walsh, 2024).

This assumption is particularly evident in Islamic Religious Education (PAI), a subject expected not only to transmit knowledge but also to cultivate moral reasoning, ethical behavior, and religious consciousness among students (Elfizar et al., 2025; Maulidi, 2025; Sulaeman et al., 2023). Despite this strategic role, empirical realities reveal persistent challenges in PAI learning outcomes across secondary schools, including uneven student engagement and modest cognitive achievement (Charles et al., 2024; Edy & Sumarta, 2025; Oviyanti et al., 2024). Reports from national education evaluations indicate that improvements in teacher qualifications have not always been accompanied by proportional gains in student learning, raising critical questions about the extent to which teacher competence shapes meaningful educational experiences (Barrios & López-Gutiérrez, 2023; Crompton, 2023; Møller-Skau & Lindstøl, 2022).

Within the broader academic discourse, Research on teacher competence and student outcomes has produced mixed findings. A substantial body of quantitative Research suggests that teachers' pedagogical knowledge, subject mastery, and classroom management skills are positively associated with student achievement (Dumaguing & Yango, 2023; Owusu et al., 2022; Tong & Ding, 2025). However, more recent large-scale syntheses challenge the strength of this relationship. Luo & Derakhshan (2024) demonstrates that teacher-related variables contribute less to learning outcomes than student-related factors such as motivation, self-regulation, and engagement. Similarly, Yang & Kaiser (2022) found that teachers' professional competence accounted for only a small proportion of the variance in students' learning outcomes when instructional quality and classroom interactions were considered. In the context of religious education, studies increasingly emphasize the importance of learning environments, peer interaction, and experiential learning in shaping students' understanding and internalization of values, rather than teacher competence alone (Blömeke et al., 2022; König et al., 2021; Martin-Storey et al., 2023).

Despite these insights, much of the existing literature remains dominated by quantitative approaches that prioritize measurable outcomes, often overlooking how teacher competence is enacted and interpreted within everyday classroom practices. In PAI specifically, prior studies tend to focus on test scores or curriculum implementation, with limited attention to how students experience learning activities and how teachers' professional competence is perceived and translated into pedagogical practice. This creates a critical gap in understanding the discrepancy between formal teacher competence and actual learning experiences. Moreover, few studies have examined this issue in Indonesian public schools, where PAI is delivered across diverse sociocultural contexts that may significantly Influence learning dynamics. As a result, the mechanisms through which teacher competence interacts with student engagement and cognitive development remain insufficiently explained.

Responding to this gap, the present study seeks to explore more deeply the role of teachers' professional competence in relation to students' learning activities and cognitive learning outcomes in Islamic Religious Education. Rather than assuming a direct and linear relationship, this Research adopts a qualitative

orientation to understand how teacher competence is manifested in classroom practices and how it is experienced by students. By situating teacher competence within the broader learning ecology—encompassing classroom interaction, student agency, and contextual factors—this study aims to extend existing Research that has largely treated competence as a static and isolated variable. Such an approach is essential for capturing the complexity of learning processes in PAI, where cognitive achievement is closely intertwined with values, attitudes, and lived experiences.

The central argument advanced in this study is that teachers' professional competence, while important, does not automatically translate into effective learning unless meaningful pedagogical practices and supportive learning environments mediate it. Through an in-depth examination of classroom dynamics and student experiences, this Research seeks to uncover how competence is enacted, negotiated, and sometimes constrained in practice. By doing so, the study provides a conceptual bridge between competence-based educational policies and the realities of classroom learning. This focus not only contributes to theoretical discussions on educational effectiveness but also offers practical insights for educators and policymakers seeking to improve PAI learning beyond technical competence frameworks. The following section outlines the qualitative Research design and methodological approach employed to achieve these objectives.

RESEARCH METHODS

This study adopted a descriptive quantitative Research design to examine the relationships between teachers' professional competence, students' learning activities, and cognitive learning outcomes in Islamic Religious Education (PAI). This design was chosen because it enables the systematic measurement of relationships among variables using numerical data while accurately describing existing conditions within a natural educational setting (Duckett, 2021; Gavas et al., 2024; Shaikh et al., 2025). Such an approach is appropriate for social science Research that seeks to evaluate patterns and predictive associations without experimental manipulation, thereby maintaining contextual authenticity. The study was guided by hypotheses proposing that teachers' professional competence influences students' learning activities and cognitive learning outcomes, both individually and simultaneously; a conceptual model of these hypothesized relationships may be presented to clarify the analytical framework.

The study population consisted of 273 eleventh-grade students at SMA Negeri 15 Bandar Lampung. A simple random sampling technique was employed to ensure equal representation and to minimize selection bias, as the Research aimed to generate findings that could be generalized to the broader student population rather than to specific subgroups. Using the Taro Yamane formula with a 5% margin of error, a sample of 157 students was determined and proportionally distributed across classes (Dehbi et al., 2022; Obodo et al., 2023; Puisa et al., 2023).

Data were collected primarily through structured questionnaires designed to measure teachers' professional competence and students' learning activities using a five-point Likert scale. Teachers' professional competence was operationalized in line with national standards established by the Indonesian Ministry of Education and Culture and aligned with international frameworks such as InTASC (Gan, 2021; Norman & Paramansyah, 2024; Steffen & Ohl, 2025). In addition, students' cognitive learning outcomes were obtained from official school records, while classroom observations were conducted to contextualize questionnaire responses and support the interpretation of quantitative findings.

Prior to data analysis, the Research instruments underwent validity and reliability testing to ensure measurement accuracy. Item validity was assessed using Pearson's Product-Moment correlation, with all items exceeding the critical threshold, while reliability testing using Cronbach's Alpha produced coefficients above 0.70 for all variables, indicating strong internal consistency (Kalkbrenner, 2023; Madadizadeh & Bahariniya, 2025; Muriithi & Gore, 2023). Data analysis was conducted using IBM SPSS Statistics version 23, beginning with descriptive statistics to summarize variable distributions. Assumption testing included normality, homogeneity of variance, and multicollinearity assessments to confirm the suitability of the data for regression analysis (Çimen, 2024; Nguyen et al., 2025; Odoi et al., 2022). Inferential analysis was then performed using simple and multiple linear regression techniques to test the proposed hypotheses and to evaluate both partial and simultaneous effects among variables (Pandit et al., 2021; Polat & Gunay, 2021; YİĞİT, 2021). Ethical principles were strictly observed throughout the study, including institutional approval, informed consent, and confidentiality of participants' data.

RESULTS AND DISCUSSION

Results

Descriptive Data Analysis

This study examined the relationship between teachers' professional competence (X), students' learning activities (Y_1), and cognitive learning outcomes (Y_2) among 157 eleventh-grade students at SMA Negeri 15 Bandar Lampung. To provide an overview of the data distribution and central tendencies, descriptive statistical analyses were conducted for each Research variable. The results of these analyses, including measures of central tendency, variability, and dominant categories, are presented in **Table 1**.

Table 1. Descriptive Statistics of Research Variables

Variable	Highest	Lowest	Mean	SD	Range	Dominant Category
Teachers' professional competence (X)	87	49	67.42	9.16	38	Moderate (46.50%: 65–72)
Learning Activities (Y_1)	114	55	82.31	12.45	59	High (37.58%: 79–86)
Cognitive learning outcomes (Y_2)	100	50	76.28	10.87	50	Intermediate (Wide Spread)

Table 1 presents the descriptive statistics of the Research variables. Teachers' professional competence (X) ranges from 49 to 87, with a mean score of 67.42 and a standard deviation of 9.16, indicating a moderate level of competence as the dominant category (46.50% within the 65–72 range). Students' learning activities (Y_1) range from 55 to 114, with a mean of 82.31 and a standard deviation of 12.45; the dominant category is high (37.58% within the 79–86 range). Cognitive learning outcomes (Y_2) range from 50 to 100, with a mean score of 76.28 and a standard deviation of 10.87, reflecting a relatively wide distribution without a clearly dominant category. The distribution patterns of these variables are further illustrated in **Figure 1**.

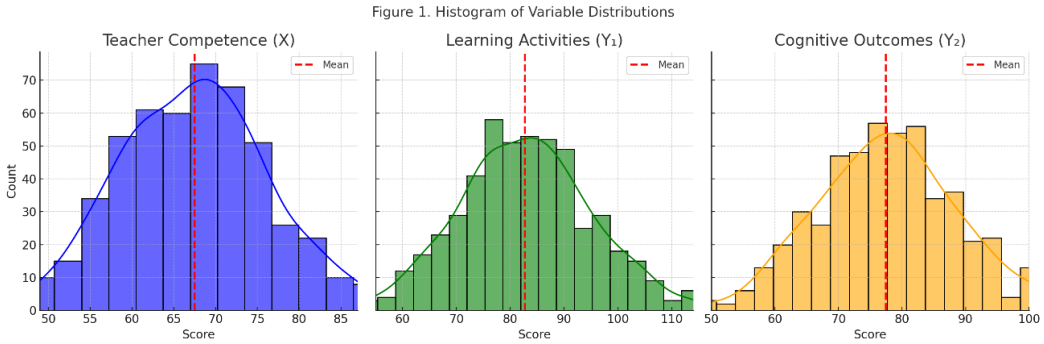

Figure 1. Histogram of Variable Distributions

Figure 1 shows that teachers' professional competence (X) follows a near-normal distribution, with a mean of 67.42 and a standard deviation of 9.16, and most observations are clustered in the moderate range (65–72). Students' learning activities (Y_1) exhibit positive skew toward higher values (M = 82.31, SD = 12.45), suggesting relatively high levels of student engagement. In contrast, cognitive learning outcomes (Y_2) show an approximately normal distribution (M = 76.28, SD = 10.87), with the majority of students achieving intermediate-level performance.

Statistical Assumption Tests

Parametric assumptions were examined prior to conducting inferential analyses. **Table 2** presents the results of the statistical assumption tests performed to assess the suitability of the data for regression analysis. The visual patterns supporting these assumptions are further illustrated in Tabel 2. Table 2 indicates that all statistical assumption tests were satisfied, confirming that the data meet the required criteria for further analysis. The Kolmogorov–Smirnov test demonstrates normality (Sig. = 0.200, $p > 0.05$). Levene's test results (Sig. X = 0.520; Y_1 = 0.288; Y_2 = 0.577) indicate homogeneity of variances across groups ($p > 0.05$). No multicollinearity was detected, as all Variance Inflation Factor (VIF) values were below the threshold of 10. The Durbin–Watson statistic (d = 1.907) falls within the acceptable range ($1.5 < d < 2.5$), indicating the absence of autocorrelation.

Table 2. Results of Statistical Assumption Tests

Assumption	Test Method	Result	Criteria	Interpretation
Normality	Kolmogorov-Smirnov	Sig. = 0.200	$p > 0.05$	Data normally distributed
Homogeneity of Variance	Levene's Test	Sig. X=0.520; Y_1=0.288; Y_2=0.577	$p > 0.05$	Homogeneous variances across groups
Multicollinearity	VIF	VIF < 10 (all variables)	VIF < 10 is accepted	No multicollinearity detected
Autocorrelation	Durbin-Watson	d = 1.907	1.5 < d < 2.5	No autocorrelation
Heteroscedasticity	Scatter Plot & Glejser	Residuals random	Random residual pattern	Homoscedasticity confirmed

Inferential Analysis

This section presents the inferential analysis conducted to examine the relationships among the Research variables. Inferential statistical techniques were employed to test the proposed hypotheses and determine the extent to which teachers' professional competence influences students' learning activities and learning outcomes. A simple linear regression analysis was applied to assess the direct relationship between the independent and dependent variables. The results of these analyses provide empirical evidence to support or reject the hypothesized relationships.

Effect of Teachers' Professional Competence (X) on Learning Activities (Y_1)

A simple linear regression analysis was performed to examine the relationship between teachers' professional competence (X) and students' learning activities (Y_1). The results of this analysis are summarized in **Table 3**.

Table 3. Simple Linear Regression Results (X → Y_1)

Model	R	R^2	Adjusted R^2	Std. Error	F	Sig.
Regression	0.032	0.001	-0.005	8.473	0.155	0.694

Table 3 indicates that teachers' professional competence (X) has a negligible effect on students' learning activities (Y_1). The regression model explains only 0.1% of the variance in Y_1 (R^2 = 0.001), reflecting a very weak association. Furthermore, the F-test result is not statistically significant (F = 0.155, p = 0.694), indicating that teachers' professional competence does not significantly predict learning activities. The negative adjusted R^2 value (−0.005) further suggests that the model does not improve prediction beyond the mean-based model, underscoring its limited explanatory power.

Effect of Teacher Professional Competence (X) on Cognitive learning outcomes (Y_2)

To examine the effect of teachers' professional competence on students' cognitive learning outcomes, a simple linear regression analysis was conducted. The results of this analysis, assessing the Influence of teachers' professional competence (X) on cognitive learning outcomes (Y_2), are presented in **Table 4**.

Table 4. Simple Linear Regression Results (X → Y_2)

Model	R	R^2	Adjusted R^2	Std. Error	F	Sig.
Regression	0.122	0.015	0.009	6.271	2.349	0.127

Table 4 indicates that teachers' professional competence (X) accounts for only 1.5% of the variance in cognitive learning outcomes (Y_2) (R^2 = 0.015), reflecting a weak association between the variables. Furthermore, the F-test result is not statistically significant (F = 2.349, p = 0.127), indicating that teachers' professional competence does not significantly predict students' cognitive learning outcomes.

Simultaneous Effect of X, Y_1, and Y_2

A multiple linear regression analysis was employed to assess the simultaneous effects of teachers' professional competence (X), learning activities (Y_1), and cognitive learning outcomes (Y_2). The results are presented in **Table 5**.

Table 5. Multiple Linear Regression Results

Variable	B	Std. Error	Beta	t	Sig.
Constant	76.32	9.94	–	7.678	0.000
Learning Activities (Y_1)	0.017	0.056	0.025	0.308	0.759
Cognitive learning outcomes (Y_2)	-0.113	0.075	-0.121	-1.508	0.134

The model summary presented in **Table 5** indicates that the regression model explains only 1.6% of the variance (R^2 = 0.016) and is not statistically significant (F = 1.215, p = 0.300). Furthermore, neither learning activities (Y_1) (p = 0.759) nor cognitive learning outcomes (Y_2) (p = 0.134) make a statistically significant contribution to the model, indicating its limited explanatory power.

Visualization of Relationships

This section presents a visual examination of the relationships among the study variables. The relationships between the independent variable, teachers' professional competence (X), and the dependent variables, students' learning activities (Y_1) and cognitive learning outcomes (Y_2), are illustrated in **Figure 2** using scatter plots.

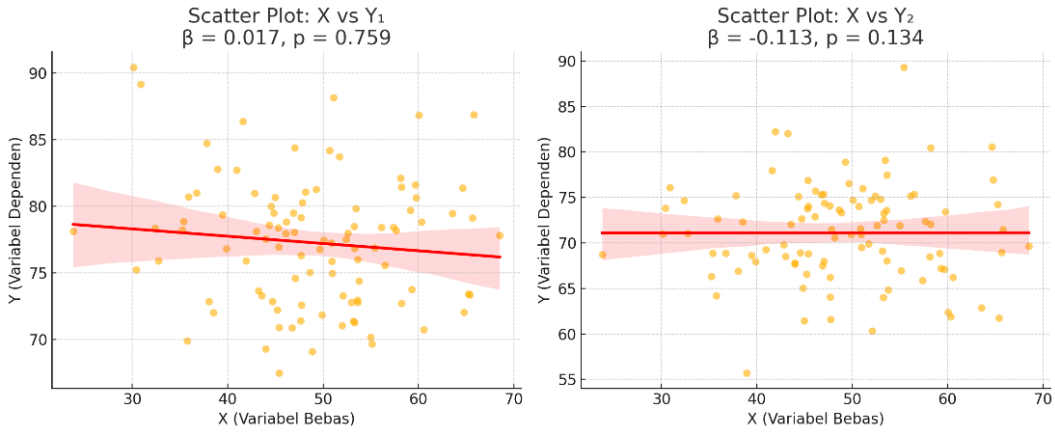

Figure 2. Scatter Plot of X vs Y_1 and X vs Y_2

Figure 2 visually reinforces the statistical findings by showing the absence of clear linear relationships between teachers' professional competence and the two outcome variables. The scatter plot depicting the relationship between teachers' professional competence (X) and students' learning activities (Y_1) shows widely dispersed data points and a nearly flat regression line, indicating minimal association. Similarly, the plot of teachers' professional competence (X) and cognitive learning outcomes (Y_2) shows no discernible upward or downward trend, as reflected in the weak regression slope. In both plots, the broad dispersion of observations around the regression lines suggests that variations in students' learning activities and cognitive outcomes are not systematically associated with teachers' professional competence. These visual patterns corroborate the regression results, emphasizing that other factors beyond teacher competence likely play a more substantial role in shaping student learning.

Discussion

This study was conducted to critically reassess the widely held assumption that teachers' professional competence is a primary determinant of student learning activities and cognitive outcomes in Islamic Religious Education (PAI). Within educational policy and teacher development discourse, professional competence is often positioned as a central lever for improving learning quality (Balasi & Iordanidis, 2024; Grimm, 2024; Larsen & McCormick, 2022). However, empirical investigations that directly test this assumption in specific instructional contexts, particularly in PAI, remain limited. By examining the relationships between teacher competence, student learning activities, and cognitive learning outcomes, this study sought to clarify whether professional competence alone meaningfully explains variations in student learning.

The results indicate that teachers' professional competence does not have a statistically significant effect on either students' learning activities or cognitive learning outcomes. The regression analyses reveal very low explanatory power, suggesting that teacher competence accounts for only a minimal proportion of variance in both dependent variables. These findings challenge conventional

expectations but are consistent with previous Research emphasizing that learning outcomes are shaped by a constellation of factors rather than by teacher attributes alone (Vermunt et al., 2023). Student-related factors such as motivation, self-regulation, and engagement often exert stronger influences on achievement than teacher competence in isolation (Brooks et al., 2021; Yan, 2023; Yoshimoto, 2023). Thus, the evidence of this study supports the argument that professional competence may function as a necessary but insufficient condition for effective learning.

One possible explanation for these findings lies in the learning context itself. Despite teachers' professional competence being predominantly at a moderate level, students' learning activities were relatively high, indicating that factors beyond teachers' instructional mastery may drive engagement. From the perspective of social learning theory, learning emerges through interaction with peers, classroom dynamics, and the broader learning environment (Jacobson et al., 2024; Sherman & Tůma, 2023; Sybing, 2021). It is therefore plausible that students remain actively involved due to intrinsic motivation, peer Influence, or supportive classroom climates, even when teacher competence does not vary substantially. Similarly, the absence of a significant relationship between teacher competence and cognitive outcomes suggests that competence does not automatically translate into pedagogical practices that foster higher-order thinking (Jansen & Möller, 2022; Tan & Cho, 2021).

The key contribution of this study lies in its empirical demonstration that teacher professional competence alone has limited predictive power in explaining student learning processes and outcomes in PAI. By combining regression analysis with visual examination of relationships, this Research provides robust evidence that challenges competence-centered improvement models. Instead, it highlights the need for a more holistic approach that integrates teacher competence with student agency, instructional strategies, and contextual support. These findings contribute to the broader discourse on educational effectiveness by encouraging researchers and policymakers to reconsider overreliance on teacher competence as a singular solution, and they provide a foundation for future studies to explore mediating and contextual factors that more accurately capture the complexity of learning in religious education settings.

CONCLUSION

This study examined whether teachers' professional competence meaningfully explains variations in students' learning activities and cognitive learning outcomes in Islamic Religious Education. By empirically testing this relationship, the Research addressed a gap between prevailing assumptions in educational policy and the realities observed in classroom practice. The findings demonstrate that teachers' professional competence, while important as a foundational attribute, does not significantly predict either student engagement or cognitive achievement in the examined context. Instead, the results suggest

that learning processes and outcomes are shaped by broader influences beyond individual teacher characteristics, reinforcing the view that educational effectiveness cannot be reduced to competence alone.

The contribution of this study lies in its ability to empirically challenge competence-centered models of educational improvement within the context of Islamic Religious Education. By revealing the limited explanatory power of teacher professional competence, this Research encourages a shift toward more holistic and context-sensitive approaches that integrate student agency, learning environments, and instructional practices. These findings offer practical implications for policymakers and educators, particularly by prompting reconsideration of professional development priorities and assessment frameworks. Moreover, the study provides a foundation for future Research to explore mediating and contextual factors that more accurately capture the complexity of learning, thereby advancing a more nuanced understanding of how educational quality can be strengthened in both religious and general education settings.

ACKNOWLEDGMENT

The authors would like to express their sincere gratitude to the principal, teachers, and students of SMA Negeri 15 Bandar Lampung for their cooperation and support during the data collection process. Appreciation is also extended to all parties who provided valuable assistance and constructive feedback that contributed to the completion of this study.

REFERENCES

Balasi, A., & Iordanidis, G. (2024). Primary Schools as Professional Learning Communities and Teachers' Professional Development: An Empirical Study in a Greek Educational Context. *Teacher Development, 28*(4), 569–590. https://doi.org/10.1080/13664530.2024.2322082

Barnes, M. (2021). Policy Actors or Objects of Policy? Teacher Candidates' Interpretations of 'Teacher Quality' Policy Initiatives in Australia. *Teaching and Teacher Education, 106*. https://doi.org/10.1016/j.tate.2021.103440

Barrios, E., & López-Gutiérrez, A. (2023). Language Learning in a Partially English-Taught Teacher Education Programme: Language Gains and Student Perceptions. *International Journal of Multilingualism, 20*(2), 504–521. https://doi.org/10.1080/14790718.2021.1888956

Blömeke, S., Jentsch, A., Ross, N., Kaiser, G., & König, J. (2022). Opening Up the Black Box: Teacher Competence, Instructional Quality, and Students' Learning Progress. *Learning and Instruction, 79*. https://doi.org/10.1016/j.learninstruc.2022.101600

Brooks, C., Burton, R., van der Kleij, F., Ablaza, C., Carroll, A., Hattie, J., & Neill, S. (2021). Teachers Activating Learners: The Effects of a Student-Centred Feedback Approach on Writing Achievement. *Teaching and Teacher Education, 105*. https://doi.org/10.1016/j.tate.2021.103387

Charles, Yusutria, Yuherman, & Kistoro, H. C. A. (2024). The Effect of Teacher Teaching Motivation on Student Learning Achievement in Islamic Religious Education (PAI) at State High School 1 Baso Bukittinggi. *Journal of Social Science and Economics, 1*(2), 243–253. https://doi.org/10.37812/josse.v1i2.624

Çimen, M. (2024). A Research on the Importance of Testing the Normality Assumption in Microbiological Data. *International Advanced Researches and Engineering Journal, 8*(3), 161–166. https://doi.org/10.35860/iarej.1532064

Crompton, H. (2023). Evidence of the ISTE Standards for Educators Leading to Learning Gains. *Journal of Digital Learning in Teacher Education, 39*(4), 201–219. https://doi.org/10.1080/21532974.2023.2244089

Dehbi, H. M., Embleton-Thirsk, A., & McCaw, Z. R. (2022). Sample Size Calculation for Randomized Selection Trials With a Time-to-Event Endpoint and a Margin of Practical Equivalence. *Statistics in Medicine, 41*(20), 4022–4033. https://doi.org/10.1002/sim.9490

Duckett, L. J. (2021). Quantitative Research Excellence: Study Design and Reliable and Valid Measurement of Variables. *Journal of Human Lactation, 37*(3), 456–463. https://doi.org/10.1177/08903344211019285

Dumaguing, M. L., & Yango, A. R. (2023). Teachers' Pedagogical Competence, Classroom Management Skills, and Students' Academic Achievement Among Selected Public City Schools Division in the Province of Laguna. *Technium Social Sciences Journal, 44*, 573–591. https://doi.org/10.47577/tssj.v44i1.8923

Edy, S., & Sumarta, S. (2025). Challenges and Opportunities of the Islamic Religious Education (PAI) Curriculum at Armaniyah Vocational High School (SMK) Bekasi in Facing Modern Work Demands. *Edukasi Islami: Jurnal Pendidikan Islam, 14*(1), 201–214. https://doi.org/10.30868/ei.v14i01.8097

Elfizar, E., Mulia, M., Safriadi, S., & Realita, R. (2025). Building Students' Moral Resilience Through Islamic Religious Education (PAI) as a Preventive Effort Against Online Gambling in Madrasah. *FITRAH: International Islamic Education Journal, 7*(1), 76–84. https://doi.org/10.22373/fitrah.v7i1.7971

Gan, X. (2021). On the Causes and Countermeasures of Chinese Learners' English Reading Anxiety. *Journal of Language Teaching and Research, 12*(6), 1034–1038. https://doi.org/10.17507/JLTR.1206.19

Gavas, R. D., Das, M., Ghosh, S. K., & Pal, A. (2024). Design of Spatiotemporal Variability Index for Climatic Variables. *Measurement: Journal of the International Measurement Confederation, 231*. https://doi.org/10.1016/j.measurement.2024.114577

Grimm, F. (2024). Teacher Leadership for Teaching Improvement in Professional Learning Communities. *Professional Development in Education, 50*(6), 1135–1147. https://doi.org/10.1080/19415257.2023.2264286

Handayani, S., Peddell, L., & Yeigh, T. (2023). Participants' Experiences in Heutagogy Teacher Professional Education in Indonesia. *Australian Journal of Teacher Education, 48*(6), 1–15. https://doi.org/10.14221/1835-517X.5739

Jacobson, S., Degotardi, S., & Sweller, N. (2024). A Dynamic Systems Examination of the Impact of Peers on Educator–Infant Synchrony Within Joint Attention Interactions in an Early Childhood Room. *Learning, Culture and Social Interaction, 49*. https://doi.org/10.1016/j.lcsi.2024.100868

Jansen, T., & Möller, J. (2022). Teacher Judgments in School Exams: Influences of Students' Lower-Order-Thinking Skills on the Assessment of Students' Higher-Order-Thinking Skills. *Teaching and Teacher Education, 111*. https://doi.org/10.1016/j.tate.2021.103616

Kalkbrenner, M. T. (2023). Alpha, Omega, and H Internal Consistency Reliability Estimates: Reviewing These Options and When to Use Them. *Counseling Outcome Research and Evaluation, 14*(1), 77–88. https://doi.org/10.1080/21501378.2021.1940118

König, J., Blömeke, S., Jentsch, A., Schlesinger, L., née Nehls, C. F., Musekamp, F., & Kaiser, G. (2021). The Links Between Pedagogical Competence, Instructional Quality, and Mathematics Achievement in the Lower Secondary Classroom. *Educational Studies in Mathematics, 107*(1), 189–212. https://doi.org/10.1007/s10649-020-10021-0

Larsen, S., & McCormick, K. (2022). Fostering Professional Responsibility Through High-Quality Professional Learning Opportunities. *Teacher Development, 26*(1), 117–134. https://doi.org/10.1080/13664530.2021.1982759

Luo, T., & Derakhshan, A. (2024). Examining the Role of Classroom Climate and Teacher–Student Relationships in EFL Students' Perceived Learning Outcomes: A Self-Determination Theory Perspective. *Learning and Motivation, 88*. https://doi.org/10.1016/j.lmot.2024.102062

Madadizadeh, F., & Bahariniya, S. (2025). Tutorial on Internal Consistency Assessment by Cronbach's Alpha and McDonald's Omega. *Perioperative Care and Operating Room Management, 41*. https://doi.org/10.1016/j.pcorm.2025.100568

Martin-Storey, A., Dirks, M., Paquette, G., Boutin, S., Dryburgh, N. S. J., Leduc, K., Bolduc, M. L., & Temcheff, C. (2023). The Slut-Shaming Instrument: Preliminary Validation, Correlates, and Links With Psychological Distress Among Adolescent Girls. *Journal of Research on Adolescence, 33*(4), 1447–1457. https://doi.org/10.1111/jora.12876

Maulidi, A. (2025). The Effect of Emotional Intelligence and Self-Efficacy on the Sense of Dark Humor in Students of the Faculty of Psychology, State Islamic University of Maulana Malik Ibrahim Malang. *Journal of Psychological Insight, 1*(2), 92–105.

Møller-Skau, M., & Lindstøl, F. (2022). Arts-Based Teaching and Learning in Teacher Education: "Crystallising" Student Teachers' Learning Outcomes Through a Systematic Literature Review. *Teaching and Teacher Education, 109*. https://doi.org/10.1016/j.tate.2021.103545

Muriithi, B. A. K., & Gore, K. (2023). Test–Retest Reliability and Internal Consistency of the Occupational Resilience Measure (ORM 1.0). *The American Journal of Occupational Therapy, 77*(Supplement_2), 7711500047p1. https://doi.org/10.5014/ajot.2023.77s2-po47

Nguyen, N. T., Tang, L., Chen, L., & Phillips, P. J. (2025). A Homogeneity Test for Ordinal Receiver Operating Characteristic Regression With Application to Facial Recognition Accuracy Assessment. *Statistical Analysis and Data Mining, 18*(2). https://doi.org/10.1002/sam.70021

Norman, E., & Paramansyah, A. (2024). The Influence of Inspiring Leadership and Religiosity on Teacher Performance. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam, 8*(2), 438–450. https://doi.org/10.33650/al-tanzim.v8i2.6732

Obodo, S. C., Toher, D., & White, P. (2023). The Just-About-Right Pilot Sample Size to Control the Error Margin. *International Journal of Statistics and Probability, 12*(3), 1. https://doi.org/10.5539/ijsp.v12n3p1

Odoi, B., Twumasi-Ankrah, S., Samita, S., & Al-Hassan, S. (2022). The Efficiency of Bartlett's Test Using Different Forms of Residuals for Testing Homogeneity of Variance in Single and Factorial Experiments: A Simulation Study. *Scientific African, 17*. https://doi.org/10.1016/j.sciaf.2022.e01323

Oviyanti, F. O., Maryamah, M., Sartika, A., Sanjaya, C. R., & Supriyadi, S. (2024). Analysis of Student Learning Difficulties in Islamic Religious Education (PAI) Subjects. *EDUTEC: Journal of Education and Technology, 7*(3). https://doi.org/10.29062/edu.v7i3.782

Owusu, R., Awuni, D. A., Arthur, Y. D., & Gordon, J. F. (2022). Roles of Classroom Management and Mastery-Oriented Instructions on Relationship Between Pedagogical Content Knowledge and Mathematics Achievement. *Contemporary Mathematics and Science Education, 3*(2), ep22016. https://doi.org/10.30935/conmaths/12340

Pandit, P., Dey, P., & Krishnamurthy, K. N. (2021). Comparative Assessment of Multiple Linear Regression and Fuzzy Linear Regression Models. *SN Computer Science, 2*(2). https://doi.org/10.1007/s42979-021-00473-3

Polat, E., & Gunay, S. (2021). The Comparison of Partial Least Squares Regression, Principal Component Regression, and Ridge Regression With Multiple Linear Regression for Predicting PM10 Concentration Level Based on Meteorological Parameters. *Journal of Data Science, 13*(4), 663–692. https://doi.org/10.6339/jds.201510_13(4).0003

Puisa, R., Montewka, J., & Krata, P. (2023). A Framework Estimating the Minimum Sample Size and Margin of Error for Maritime Quantitative Risk Analysis. *Reliability Engineering and System Safety, 235*. https://doi.org/10.1016/j.ress.2023.109221

Shaikh, S., Gupta, A., Raj, V., & Singh, A. (2025). Data-Driven Predictive Models for Evaluating Optimum Binder Content and Volumetric Properties of Bituminous Mixtures Using Design Variables. *Measurement: Journal of the International Measurement Confederation, 253*. https://doi.org/10.1016/j.measurement.2025.117411

Sherman, T., & Tůma, F. (2023). Claiming Insufficient Knowledge in Pairwork and Groupwork Classroom Activities. *Learning, Culture and Social Interaction, 43*. https://doi.org/10.1016/j.lcsi.2023.100758

Steffen, A., & Ohl, F. (2025). Unlocking the Potential of Student Teachers: A Practical Approach to Promote Competence Development Through Competence Standards. *Cogent Education, 12*(1). https://doi.org/10.1080/2331186X.2024.2443994

Sulaeman, M., Marlina, Y., Zulvia, N., Yusuf, M., & Afifah, N. (2023). Implementation of Islamic Religious Education (PAI) Learning on Student Character in Merdeka Belajar Curriculum. *EDUTEC: Journal of Education and Technology, 7*(2). https://doi.org/10.29062/edu.v7i2.689

Sybing, R. (2021). Examining Dialogic Opportunities in Teacher–Student Interaction: An Ethnographic Observation of the Language Classroom. *Learning, Culture and Social Interaction, 28*. https://doi.org/10.1016/j.lcsi.2021.100492

Tan, S., & Cho, Y. W. (2021). Towards a Higher Order Thinking Skills-Oriented Translation Competence Model. *Translation, Cognition and Behavior, 4*(2), 187–211. https://doi.org/10.1075/tcb.00053.tan

Tong, Y., & Ding, Y. (2025). Productive Classroom Dialogue and Its Association With Student Achievement in Knowledge-Building Environments. *Language and Education, 39*(1), 232–251. https://doi.org/10.1080/09500782.2024.2323207

Vermunt, J. D., Vrikki, M., Dudley, P., & Warwick, P. (2023). Relations Between Teacher Learning Patterns, Personal and Contextual Factors, and Learning Outcomes in the Context of Lesson Study. *Teaching and Teacher Education, 133*. https://doi.org/10.1016/j.tate.2023.104295

Walsh, T. (2024). From 'Sojourning' to Standards: A Critical Reflection on the Evolution of Initial Teacher Education Policy in Ireland. *European Journal of Teacher Education*. https://doi.org/10.1080/02619768.2024.2323928

Yan, D. (2023). Visible Learning: The Sequel: A Synthesis of Over 2,100 Meta-Analyses Relating to Achievement (Book Review). *Teacher Development, 27*(5), 664–667. https://doi.org/10.1080/13664530.2023.2237484

Yang, X., & Kaiser, G. (2022). The Impact of Mathematics Teachers' Professional Competence on Instructional Quality and Students' Mathematics Learning Outcomes. *Current Opinion in Behavioral Sciences, 48*. https://doi.org/10.1016/j.cobeha.2022.101225

Yiğit, S. (2021). Comparison of Some Effect Size Measures in Simple and Multiple Linear Regression Models. *Eskişehir Technical University Journal of Science and Technology A – Applied Sciences and Engineering, 22*(1), 77–84. https://doi.org/10.18038/estubtda.864226

Yoshimoto, H. K. (2023). The Influence of Teacher–Student Relationships on Student Motivation and Achievement: Perspective From Japan. *Journal of Education*, *6*(2), 1–12. https://doi.org/10.53819/81018102t4157