

Comprehensive Analysis of the Impact of Certification on Teacher Performance and Student Learning Achievement

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ABSTRACT This study aims to analyze the effect of certification on teacher performance through student learning achievement at Al-Furqon Educational Institution. The background of this study is driven by great attention to improving the quality of education in Indonesia, especially in terms of teacher performance that affects student learning achievement. Teacher certification implemented by the government is expected to improve teacher competence and welfare, but there is still debate about its impact on teacher performance and student achievement. Based on this, this study aims to explore more deeply the effect of certification on teacher performance and how student learning achievement can act as a mediator in the relationship. This study uses a quantitative approach with structural equation modeling (SEM) analysis. The population in this study were all teachers at Al-Furqon Educational Institution, with samples taken using census techniques, namely all teachers at the institution. The results of the study indicate that: 1) Certification has a significant effect on teacher performance, 2) Teacher performance is significantly impacted by student learning achievement. 3) Through student learning achievement as an intervening variable, certification significantly affects teacher performance. This study contributes new findings that the effect of certification on teacher performance is greater when through student learning achievement compared to the direct effect of certification. Thus, this study enriches the theory regarding the role of student learning achievement in improving teacher performance and provides practical implications for teacher certification policies that not only focus on improving teacher competence, but also pay attention to its impact on student learning achievement as an important factor in improving the quality of education as a whole.

Keywords: Certification, Teacher Performance, Student Learning Achievement, Structural Equation Modeling.

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INTRODUCTION

Recent debates surrounding teacher performance in Indonesia have gained significant attention in both television and online media (Setyraningrum, 2025; Sudjarwo, 2025). Despite an increase in the number of eligible teachers which grew by 9.6% between 2020-2021 and is projected to continue as more teachers retire (Angelia, 2022) challenges remain. The World Bank's assessment highlights the ongoing issue of low teacher quality in Indonesia (CNN, 2021). While the Central Statistics Agency underscores the persistent national shortage of teachers, even as the number of qualified educators rises (Effendi, 2023). The primary challenges teachers face in Indonesia can be categorized into seven key issues: quantity, data collection, equality, competence, technological

advancement, welfare, and protection (Faizah et al., 2023; Jannah et al., 2024; Sari, 2023). Among these, welfare concerns, particularly low salaries, have been widely reported as a major issue for teachers (Khoironi, 2023). In response, the government has implemented strategic measures, such as teacher certification allowances, aimed at improving teacher performance and, by extension, the quality of education (Cardy & Leonard, 2014; Daheri et al., 2023; Disdik, 2024; Djalilah et al., 2024). While the quality of education can be partially assessed through student achievements in educational institutions, the problems identified above suggest that current policies and efforts have not yet fully resolved the underlying issues. Therefore, this study seeks to explore new strategies and solutions that could address these ongoing challenges, as will be discussed in the following section.

The findings from previous research on the impact of teacher certification on performance show inconsistencies. Some studies indicate a positive relationship between teacher certification and improved teacher professionalism and performance (Huda & Rokhman, 2021; Juniardi & Yuniati, 2024; Ma'arif et al., 2022; Nor et al., 2024; Susanti et al., 2025), while others suggest no significant effect (Kusumawardhani, 2017a; Maarif et al., 2024). For example (Levatino et al., 2024; Li et al., 2024; Zebon et al., 2025) highlight that teacher performance is directly influenced by the compensation received, but they do not directly connect this to teacher certification. Additionally, multiple studies have shown that teacher performance is a key factor in student learning outcomes (Hollenstein et al., 2024; Hu et al., 2024; Norawati et al., 2024), and further research confirms that both teacher certification and performance are positively correlated with improved student outcomes (Azwar et al., 2015; Taryana et al., 2023). However, the methodology used in these studies, such as multiple linear regression with smaller sample sizes, may have influenced their findings. For instance, (Kane et al., 2008). suggest that certified teachers tend to exhibit higher quality in delivering learning outcomes, whereas, (Kusumawardhani, 2017b), found no significant impact of certification on teacher performance or student achievement.

This study is expected to have a major impact on the problem of teacher performance by asking the first research question, how does teacher certification affect teacher performance? This question will analyze the extent to which teacher certification is able to intimidate teacher performance. The second question is how does student learning achievement affect teacher performance? This is intended to be able to analyze the main factors that need to be improved to improve the quality of teacher performance, and the third question is how the role of teacher certification on teacher performance through student learning achievement as an intervening variable is.

Teacher competence is a combination of various abilities, namely personal, scientific, technological, social, and spiritual abilities, and forms the standard competence of the teacher profession, if the teacher has been able to master the various basic competencies that have been assigned to him, then this will have an impact on his performance, which is increasingly increasing. Logically, if all human needs have been fulfilled, then the individual will think about other things which can improve his own abilities to get recognition. So that he will try to improve his quality in the form of maximum performance. Student learning achievement is one indicator of good teacher performance or making the best efforts so that it affects students. Student learning achievement is greatly influenced by how teachers implement the learning system in the classroom, and how teachers interact well with students. In terms of the process, teacher certification can affect the learning climate which includes all sub-aspects of the process but at the teacher or class level, namely the teaching and learning process, assessment process, class management, and teacher leadership. Improving teacher quality through certification programs as an effort to improve the quality of education. The rationale is that if good teacher competence is followed by good income, it is hoped that his performance will also be good. If the teacher's performance is good, then his teaching and learning activities will also be good. Good teaching and learning activities are expected to produce quality education and create high-achieving students. Based on this, the research hypothesis that will be tested in the next section can be drawn. Namely, first, there is a significant

influence between certification and teacher performance, second, there is a significant influence between student learning achievement and teacher performance, third, teacher performance is influenced by teacher certification through student learning achievement.

METHOD

This research was designed using quantitative research with an explanatory approach that will explore each research variable used in this research (Cen et al., 2016; Groeneveld et al., 2015; Watson, 2015). The location of this research is at the Al-Furqon Islamic Education Foundation in Gresik. This foundation was chosen because it is in accordance with the research theme raised and has a large population because the Al-Furqon Foundation has madrasas starting from elementary school to high school (MI, MTs and MA), while this research has a scope of human resource management.

This study utilizes primary data, which was collected directly from respondents who provided answers to the questionnaires administered by the researchers in the field (Grbich, 2013). Respondents were selected using the census method because the number of respondents was 145 people who were the entire population of the study who were teachers at the elementary to high school levels at the Foundation. The questionnaires given to respondents had previously been tested for validity and reliability in order to obtain unbiased answers from the respondents. (Amendt et al., 1990; Slamet & Wahyuningsih, 2022; Taherdoost, 2016) Validity test using correlation and reliability using Cronbach alpha.

The time of this research was conducted within 6 months, because the researcher always accompanied each respondent in filling out the questionnaire which aimed to help provide an explanation to the respondents if they had difficulty in filling out the questionnaire. This research instrument used a Likert scale of 1-5 (Albaum, 1997; Boone & Boone, 2012). The research data analysis technique uses structural equation model (SEM) analysis by developing a model based on theory or concept, constructing a path diagram, converting the path diagram to a structural model, selecting an Input matrix, standard model solutions and evaluating the goodness of fit index as well as interpretation and modification. To test the hypothesis in research using regression, the regression equation is as follows:

1. $Y_2 = \beta_1 X_1 + Z_1$

2. $Y_2 = \beta_2 Y_1 + Z_2$

3. If $\beta_1 < \beta_3$, then Y_1 does not influence between X_1 and Y_2 . If $\beta_1 > \beta_3$, then Y_1 influences between X_1 and Y_2 . If $\beta_3 < \beta_1$, then Y_1 cannot mediate. If $\beta_3 > \beta_1$, then Y_1 can mediate.

RESULT AND DISCUSSION

Result

This structural equation modeling test consists of several parts as follows, first Confirmatory Exogenous Variable Factor Analysis, the loading factor value on the certification variable indicator (X_1) is $X_{1.1} = 1.00$, $X_{1.2} = 0.96$, $X_{1.3} = 1.00$, $X_{1.4} = 1.00$. The value of the overall loading factor is > 0.50 , so that the When four indications are combined, they generate a unidimensional construct that forms the certification variable (X_1). Second confirmatory factor analysis of intervening variables, the loading factor value on the student learning achievement variable indicator (Y_1) is $Y_{1.1} = 0.65$, $Y_{1.2} = 0.81$, $Y_{1.3} = 1.00$. The overall loading factor value is > 0.50 , so that the four indicators used together present unidimensional to become a construct forming the student learning achievement variable (Y_1), third, confirmatory factor analysis of endogenous variables, The loading factor value on the teacher performance variable indicator (Y_2) is $Y_{2.1} = 1.00$, $Y_{2.2} = 1.63$, $Y_{2.3} = 1.22$, $Y_{2.4} = 1.73$, $Y_{2.5} = 1.00$. The overall loading factor value is > 0.50 , so that the four indicators used together present unidimensional to become a construct forming the teacher performance variable (Y_2) and finally the Full Structural Model Technique, full model

analysis will show whether or not there is model suitability and causality in the model to be tested. Figure 1 below displays the outcomes of the entire structural model technique.

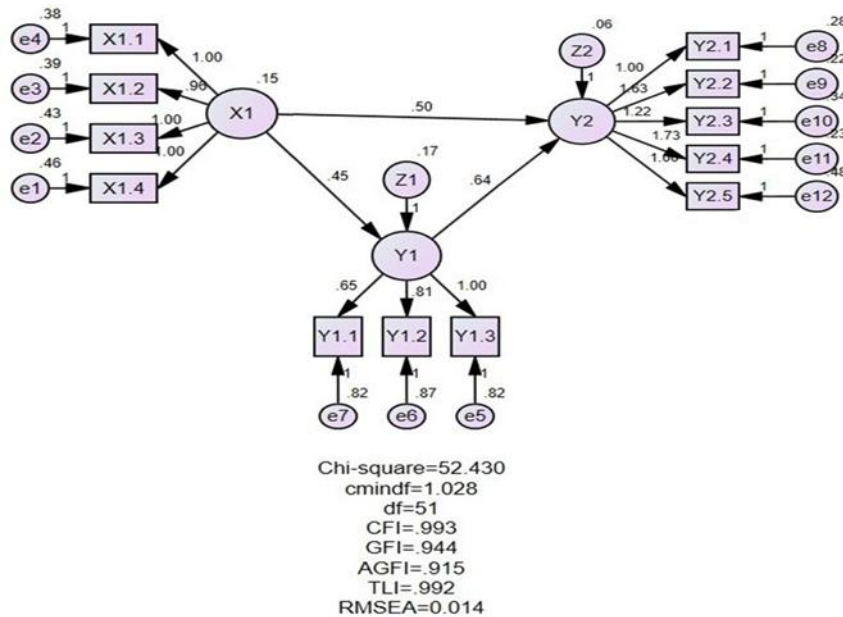


Figure 1, Full Model SEM,

The standard regression coefficient, often known as beta or β in SPSS, is displayed in the graphic above. Certification qualities have a 0.45 coefficient on student learning achievement. However, the correlation between teacher performance and student learning achievement is 0.64. The certification coefficient has a 0.50 value in relation to teacher performance. Table 1 below displays the findings of the statistical and appropriateness tests conducted on the complete SEM model.

Table 1 SEM Full Model Fit Test Results

Goodness of fit index	Cut off Value	Analysis Results	Model Evaluation
Chi-Square	Expected to be smaller than chi-square (X2 table), with sig. $\alpha = 0.05$ and $df = 22,130$ then X2 table = 69,832	52,430	Good
Probability	$\geq 0,05$	0,418	Good
CMIN/DF	≤ 2.00	1,028	Good
GFI	$\geq 0,90$	0,944	Good
AGFI	$\geq 0,90$	0,915	Good
TLI	$\geq 0,95$	0,992	Good
CFI	$\geq 0,95$	0,993	Good
RMSEA	$\leq 0,08$	0,014	Good

The model fit test results indicate a chi-square value of $52.430 <$ from the chi square table of 220.990 with a sig of $0.480 > \alpha = 0.05$, indicating that the covariance matrix between the actual observation and the prediction is the same. Other results indicate that the CMIN / DF, TLI, CFI, RMSEA, and GFI values are within the good category because they are in line with the designated cut-off value. The SEM model employed can generally be classified as effective in describing the causal relationship of the elements used, according to the results obtained.

Evaluation of Goodness-Of-Fit Criteria based on sample size, normality, outlier test and Multicollinearity between Observed/Manifest Variables. In this study, the researcher used a sample size of 145 samples. This value satisfies the requirements, specifically the minimum number of samples of 145, based on the sample size. Regarding the normalcy test.

Table 2 Results of the Normalcy Test

Variabel	min	max	skew	c.r.	kurtosis	c.r.
Y2.5	2.000	5.000	-.747	-2.376	-.239	-.586
Y2.4	2.000	5.000	.131	.644	-1.047	-2.573
Y2.3	1.000	5.000	-.014	-.070	-.910	-2.237
Y2.2	1.000	5.000	.246	1.209	-.745	-1.832
Y2.1	2.000	5.000	-.031	-.150	-1.203	-2.579
Y1.1	1.000	5.000	-.126	-.619	-.720	-1.771
Y1.2	2.000	5.000	-.229	-1.125	-1.038	-2.550
Y1.3	1.000	5.000	.024	.117	-.910	-2.238
X1.1	2.000	5.000	-.383	-1.884	-.697	-1.713
X1.2	2.000	5.000	.250	1.228	-.661	-1.625
X1.3	2.000	5.000	.422	2.077	-.443	-1.088
X1.4	2.000	5.000	-.109	-.538	-1.057	-2.508
Multivariate					-.134	-.044

All items in this research variable are normally distributed, according to the normality test results, which reveal that all indicators in the variables under study have c.r. values between -2.58 and 2.58. The next step is to do an outlier test following the normalcy test.

Examination of multivariate outliers in the study can be done using the Mahalanobis distance X^2 criterion at degrees of freedom as many indicators as used in this study, namely 13, where from the statistical table it is obtained $X_{13}^2 = 34.528$. Decision-making rules, if Md from the observation point > 34.528 it can be said that the observation point is an outlier, then if Md from the observation point < 34.528 then it is said not to be an outlier. Since point 71, the farthest observation point in this study, has a value of $Md = 26.777 < 34.528$ according to the Mahalanobis distance table, it can be said that all of the study's observation points are not outliers if the farthest point is not.

The last is to conduct a multicollinearity test, in this study the results can be seen in the determinant of sample covariance matrix which shows a figure of 0.003, where this figure is still above zero and the computer does not provide a warning indicating the occurrence of multicollinearity and singularity, thus in this study it can be concluded that there is no problem with multicollinearity and singularity.

The findings of the hypothesis test are based on the degree of significance in the regression weight and the critical ratio value, where a sig. $\leq \alpha = 0.05$ and a cr value of ≥ 2.00 are necessary to accept the hypothesis. Table 3 below displays the findings of the cr value and the degree of significance between the postulated variables.

Table 3. Results of the Hypothesis Test

Endogen		Eksogen	Estimate	S.E.	C.R.	P	Information
Y2	<---	X1	2.950	.739	3.505	***	Significant
Y1	<---	X1	.582	.104	5.603	***	Significant
Y2	<---	Y1	.964	.070	13.836	***	Significant

The findings provide the following proof:

The initial test of the hypothesis, the effect of certification on teacher performance, the critical ratio (cr) value shows that the certification variable has a value of 3.505, student learning achievement 5.603 and teacher performance 13.836. Each variable's crucial ratio value is higher than the value of 2, which is necessary to accept the hypothesis. The p value is less than 0.05, which is necessary to accept the hypothesis, since the obtained p value indicates that certification is 0.000. The first hypothesis, according to which certification significantly affects teacher performance, has been tested based on the values that were acquired.

According to the results of the second hypothesis test, which examines the relationship between teacher performance and student learning achievement, the critical ratio (cr) value is 13.386, certification is 3.505, and teacher performance is 13.836. Each variable's crucial ratio value is higher than the value of 2, which is necessary to accept the hypothesis. The p-value is less than 0.05, which is necessary to accept the hypothesis, since the obtained p-value indicates that the p-value of student learning achievement is 0.000. The second hypothesis, according to which teacher performance is significantly impacted by student learning achievement, has been tested based on the data collected.

The following table 4 shows the direct influence and total influence of the third hypothesis test, which examines the impact of certification on teacher performance as measured by student learning achievement.

Table 4: Total and Direct Effects

Variabel	X1	Y1	Y2
Standardized Direct Effect			
Y1	0,556	0	0
Y2	0,405	1,043	0
Standardized Total Effect			
Y1	0,556	0	0
Y2	0,672	1,067	0

Source: Processed Primary Data (2024)

Based on the table above, the results of the direct and total influence, then the following proof can be done: the direct influence of certification on student learning achievement is 0.556 and teacher performance is 0.405. While the total influence of certification on teacher performance through student learning achievement shows the value of student learning achievement of 0.556 and teacher performance of 1,067. Based on the test results of the direct influence value and total influence, the highest value is achieved by the total influence rather than the direct influence, so that the third hypothesis states that the influence of certification on teacher performance through student learning achievement has been tested.

Overall, the main contribution of this analysis is evidence that certification has a significant effect on teacher performance through student learning achievement. This finding strengthens the hypothesis that certification can improve teacher performance, not only through direct influence but also through improving student learning outcomes as a mediator. Thus, certification not only provides direct benefits to teachers, but also to students, which ultimately contributes to improving the overall quality of education.

Discussion

The Impact of Certification on Teacher Performance

Based on the results of the previous tests, it has been determined that certification (X) significantly impacts teacher performance. This conclusion is supported by significant findings (sig), where the p-value is less than 0.05, specifically 0.00. This indicates that certification plays a crucial role in enhancing teacher performance. The idea behind improving teacher quality through certification is that increased teacher competence, along with a corresponding rise in income, is expected to lead to better performance. Certification is a government-driven initiative aimed at improving the quality of teachers in Indonesia, with the ultimate goal of enhancing the overall education system. The certification process evaluates four key competencies that every teacher in Indonesia must possess, serving as a foundational step in the ongoing effort to improve educational quality. Additionally, certification provides financial benefits by offering allowances to certified teachers, ensuring their welfare and allowing them to focus more on enhancing their teaching performance.

Certification is a program organized by the government with the aim of improving the quality of teachers in Indonesia (Chu-Chang et al., 2013; Tjabolo & Herwin, 2020). This program is designed so that teachers can meet the competency standards that have been set, so that it is expected to have a direct impact on improving the quality of national education. The rational concept underlying this policy is that improving teacher competency, accompanied by improving welfare through certification allowances, will have an impact on improving their performance in teaching.

Teacher certification is not solely focused on enhancing welfare; it also serves to evaluate and strengthen the four essential competencies that educators must possess (Musrifah & Shah, 2024; Nilda et al., 2020). These include the ability to understand students, design and implement effective learning, as well as personal competencies such as professional conduct, discipline, responsibility, and integrity in the workplace. (Nargis et al., 2024; Syevila et al., 2024). Social competence refers to the ability to effectively interact and communicate with students, colleagues, and the community, while professional competence involves mastery of teaching content and the ability to enhance expertise in the specific field of study being taught.

The study's findings, which demonstrate the significant impact of certification on teacher performance, can be attributed to several factors. First, enhanced competence: certified teachers have a deeper understanding of effective teaching methods, enabling them to improve the quality of their instruction. Certification ensures that teachers have a better understanding of effective learning methods. Certified teachers have gone through an evaluation and training process that improves their skills in designing learning strategies that are appropriate to the needs of students, the use of technology in education to support a more interactive and interesting learning process, the application of innovative learning methods, such as project-based learning, group discussions, and differentiated learning. With this increased competence, teachers can deliver material better, increase student involvement, and create a conducive and effective learning atmosphere.

Secondly, improving welfare, certification provides additional allowances to teachers, which can improve their welfare. With improved welfare, teachers will be more focused on carrying out their duties without being distracted by financial problems. With certification allowances, teachers receive additional income that can improve their standard of living. The implications of this improved welfare include, Reducing the financial burden on teachers, so that they can focus more

on teaching duties, increasing job satisfaction, because teachers feel appreciated by the government and society for their role in education and preventing teachers from looking for side jobs, which can often interfere with concentration in teaching. With better welfare, teachers will be more motivated to give their best in teaching and guiding students.

Third, higher motivation, certification provides encouragement for teachers to continue to improve their competence and professionalism in teaching. Certification serves as a form of recognition of a teacher's competence and dedication. This encourages teachers to continue to improve their professionalism through continuous self-development, such as attending training, seminars, or further studies. Increase commitment to the profession by providing high-quality teaching and building self-confidence in facing challenges in the world of education. When teachers feel appreciated and have a better career path, they will be more enthusiastic about improving the quality of learning in the classroom.

Standardization of Teaching Quality, with certification, minimum standards of teacher competency can be enforced, so that the overall quality of education can be more assured (Sutrisno et al., 2023). Certification sets minimum competency standards that must be possessed by each teacher. This ensures that only qualified teachers can teach, thus preventing gaps in teaching quality between schools or regions. Improving the quality of national education, because all teachers have competencies that are in accordance with the standards that have been set and assisting schools in the teacher recruitment process, because certification is an indicator of the quality of prospective teaching staff. With this standardization, the education system can be more assured of its quality, so that students get an optimal learning experience. With certification, teachers are required to meet certain qualifications, which ensures that only qualified teachers can teach. Reducing the gap in teaching quality between schools and regions, this is because the application of the same standards throughout Indonesia, education becomes more equitable, reducing disparities between urban and rural areas. Helping the teacher recruitment process, because certification is an important indicator in assessing the qualifications of prospective teachers, making it easier for schools to select educators who meet the established competency standards and the last is to provide an optimal learning experience.

Teacher certification not only benefits individual teachers, but also has a broader systemic impact on the quality of national education. With the increase in teacher performance as a result of certification, various aspects of the education system experience significant improvements. Better teacher performance due to certification also has a direct impact on student learning outcomes and academic achievement. Some factors that contribute to this improvement include, Certified teachers have a deeper mastery of the material, so they can deliver lessons more clearly and systematically. This helps students understand the concepts taught more easily and quickly. With more interesting and interactive teaching methods, students become more motivated to learn. In addition, certified teachers tend to have better classroom management skills, so they can create a more disciplined and conducive learning environment. Because students receive learning from more qualified teachers, the results of national exams, school exams, and various academic competitions tend to improve. In addition, students who are educated by certified teachers are better prepared to face the challenges of higher education and the world of work in the future. In other words, teacher certification plays an important role in creating a generation that is more academically accomplished and competitive at the global level.

High-quality educators are one of the main indicators of the success of a country's education system. With certification, the National Education Standards Increase, higher teacher competency standards produce better quality education. This helps improve the ranking and credibility of the national education system on an international scale. The competitiveness of graduates is better, if teachers are more competent, then the graduates produced are also of higher quality. Graduates who excel in academics, skills, and character will be better able to compete at the global level, both in the world of further education and the job market. Attracting investment and international collaboration, countries with high-quality education systems find it easier to get investment in the

education sector, such as international scholarships, teacher and student exchange programs, and research and innovation collaboration. With the increasing reputation of national education, the education system in Indonesia can be more respected and recognized at the global level, while accelerating the nation's progress in various sectors.

This is also explained by (Jerrim, 2024; Richter & Richter, 2024; Rismanila et al., 2025) Teacher competence is a blend of various skills, including personal, scientific, technological, social, and spiritual abilities, which together define the professional standards for educators. When teachers successfully master the fundamental competencies assigned to them, it positively impacts their performance, leading to continuous improvement (Dian et al., 2023). Enhancing teacher quality through certification is a strategy to improve the overall quality of education. The underlying rationale is that as teacher competence rises, accompanied by an increase in income, it is expected that their performance will also improve (Angrist & Guryan, 2008).

The Influence of Student Learning Achievement on Teacher Performance

In this study, the hypothesis test results indicate that student learning achievement (Y1) significantly impacts teacher performance. This is demonstrated by the significant findings (sig), where the p-value is less than 0.05, specifically 0.00. This confirms that student learning achievement has a notable effect on teacher performance. Student learning achievement is greatly influenced by how teachers implement the learning system in the classroom, and how teachers interact well with students. A good teacher will try to help students to channel their potential to the maximum which will affect their learning achievement. Good student learning achievement can have a positive effect on school quality. By helping their students find their potential or increase their potential at least, teachers have participated in improving the quality of National Education.

Student academic achievement reflects how effective the teaching methods applied by the teacher are. Teachers have a major role in creating a conducive learning environment, as well as providing guidance and motivation to students (Agustin & Kistoro, 2024; Cheng et al., n.d.; Pimdee et al., 2024; Raof et al., 2024). If students show an increase in learning achievement, then this indicates that the teacher has implemented the right learning strategy and is in accordance with the needs of the students, the teacher has succeeded in building good interactions with students, so that they are more motivated to learn and the material taught has been well understood by the students, which shows the effectiveness of the approach used by the teacher. Conversely, if student learning achievement decreases, the teacher will evaluate the learning methods used and find ways to improve them.

The relationship between student learning achievement and teacher performance is reciprocal. This means that, if students show good learning outcomes, then teachers will feel more motivated, appreciated, and more enthusiastic in teaching. Teachers who see positive developments in their students will feel that the learning methods applied have been successful and will continue to improve the quality of their teaching. Students who experience learning difficulties can encourage teachers to improve their performance. If students experience learning difficulties, teachers will be encouraged to seek alternative strategies, such as more innovative learning approaches, additional guidance, or more appropriate evaluation methods. Thus, teachers will continue to develop their skills and improve their competence as educators.

Teachers are not only responsible for delivering subject matter but also have a role as a facilitator in developing students' potential (Hakim & Abidin, 2024). A good teacher will help students find their interests and talents in certain fields, develop critical, creative, and problem-solving thinking skills, and instill character values and discipline in the learning process. If a teacher can guide their students to achieve their maximum potential, then the result will not only be increased academic achievement, but also a positive influence on students' character and life skills.

High student achievement not only impacts on the performance of individual teachers, but also the overall quality of the school. Some positive impacts that can occur are, Increased School Reputation, Schools that have students with high achievements will be better known as quality

educational institutions. This can attract more high-achieving students and create a more competitive and productive academic environment. Second, National Education Quality Standards Increase, if more students throughout Indonesia achieve high academic achievement, this will contribute to improving the overall quality of national education. Excellent graduates will have higher competitiveness, both at national and international levels, and teachers are increasingly motivated to improve their competence. Teachers who see their students succeed will be increasingly encouraged to continue to improve their professional skills and competence, either through training, seminars, or the development of more innovative learning methods. Teachers who contribute to improving student achievement have also played a role in improving the quality of national education.

The Influence of Certification on Teacher Performance through Student Learning Achievement

The findings of this study suggest that the overall impact of certification on teacher performance, mediated by student learning achievement, exceeds the direct effect value. According to the results, learning achievement serves as a significant intervening factor that contributes to enhancing teacher performance at the Al-Furqon Islamic Education Foundation, with a notable effect indicated by a p-value of 0.00, which is less than 0.05. (Nanor et al., 2024) A study was carried out titled the impact of teacher certification and performance on enhancing student learning outcomes. The study's findings revealed a significant correlation between teacher certification and performance in enhancing learning outcomes. Specifically, 1) teacher certification positively impacted the improvement of student learning outcomes, and 2) teacher performance also had a positive influence on enhancing student learning outcomes.

(Al-Okaily et al., 2024; Salwa et al., 2024; Yunitasari et al., 2025) Student learning achievement is largely influenced by teachers, and teachers are the main actors in the process of improving student learning achievement. Teacher certification is a process of competency testing for prospective or current teachers seeking recognition, as well as an effort to enhance the quality of their professional competence in their chosen field. This is in line with Martinis Yamin's opinion that professional teachers, at least have an educational background that is in accordance with their expertise and have teaching experience and have the competence and authority as teachers in the classroom including, a) Having a strong grasp of teaching materials, b) Being capable of managing teaching and learning programs effectively, c) Demonstrating effective classroom management, d) Proficiently using media and learning resources, e) Understanding the fundamentals of education, f) Interacting effectively with students during teaching and learning activities, g) Conducting objective assessments of student achievement for instructional purposes, h) Understanding the functions and programs of guidance and counseling in schools, i) Implementing school administration practices, and j) Comprehending the principles and outcomes of educational research..

As stated in Law Number 14 of 2005 concerning Teachers and Lecturers, Chapter IV, Article 8 states that a professional teacher is a teacher who has a minimum academic qualification of having completed a bachelor's degree (S-1) or diploma four (D-IV), Competence refers to the four key areas that teachers must fulfill: pedagogical competence, professional competence, personal (personality) competence, and social competence. In addition, certified teachers are expected to be physically and mentally healthy and possess the capability to contribute to the achievement of national education goals (Meher et al., 2025). One way to develop competencies that teachers can do is to participate in a certification program implemented by the Teacher Training Institute (LPTK) appointed by the government.

This study presents novelty in the study of the influence of certification on teacher performance by highlighting the role of student learning achievement as an intervening variable. More specifically, the main finding that is new in this study is that the total influence of certification on teacher performance is greater when through student learning achievement compared to its

direct influence. Differences from previous researchers, research conducted by (Azwar et al., 2015) have shown a significant relationship between teacher certification and improved student learning outcomes. However, their research has not examined in depth the role of learning achievement as an intervening variable in improving teacher performance. In this study, it was found that teacher certification not only has a direct impact on teacher performance, but also indirectly through improving student learning achievement. This shows that learning achievement plays an active role in strengthening the relationship between certification and teacher performance, which is a new theoretical contribution to this study.

Strengthening the Variable Relationship Model, Previous studies have only highlighted the direct relationship between certification and teacher performance or certification with student learning outcomes. However, this study provides a new perspective by proving that student learning achievement can be a mediator (intervening variable) in the relationship. This means that certified teachers will have better performance if student learning achievement increases, not solely because of the certification itself. This provides new academic and policy implications in efforts to improve the quality of education, namely that teacher certification policies must not only focus on improving teacher competence but must also pay attention to the impact on student learning as a factor that can improve teacher performance sustainably.

The findings in this study also have significance in the context of education policy in Indonesia. In Law Number 14 of 2005 concerning Teachers and Lecturers, teacher certification aims to improve the pedagogical, professional, personality, and social competence of teachers (Tobroni et al., 2024). (Kartiko et al., 2025; Khairunnisa et al., 2024) however, this policy often focuses more on administrative aspects, such as academic qualifications and the provision of certification allowances. This study confirms that effective certification must be able to improve student learning achievement, because improving learning achievement will have a direct impact on improving teacher performance. Thus, the success of certification can not only be measured by improving teacher welfare, but also by improving student learning outcomes which then contribute to improving the overall quality of teaching.

Based on the descriptions in the previous section, a framework for research renewal can be built, as seen in Table 5 below.

Table 5 Research Contribution

Aspect	Information
Identification of Intervening Variables	This study introduces student learning achievement as an intervening variable between teacher certification and teacher performance, which has not been widely discussed in previous studies.
Impact of Teacher Certification	Research shows that the impact of teacher certification on teacher performance is more significant if it is influenced by student learning achievement, not only through direct impact.
Theoretical Contributions	This study contributes theoretically by proposing that student learning achievement plays an active mediator role in the relationship between teacher certification and teacher performance.
Policy Implications	Providing a new perspective for policy makers to design certification programs that not only improve teacher competency but also pay attention to its impact on student learning achievement.
Literature Development	This study fills the gap in the literature by discussing the role of student learning achievement as a mediator that has not been widely studied in the context of teacher certification and teacher performance.
Practical Contributions to Educational Improvement	Provides a practical contribution by suggesting that to improve teacher performance, in addition to certification, there needs to be a focus on improving student learning achievement.

CONCLUSION

With these findings, this study not only strengthens the understanding of the effectiveness of teacher certification, but also provides practical contributions for policy makers in improving the quality of national education. In an academic context, this study enriches the study of teacher certification by adding an intervening variable (student learning achievement) that strengthens the relationship between certification and teacher performance.

This is a theoretical contribution that can be used as a basis for further research on the effectiveness of certification in improving the quality of education. In a practical context, this study provides implications for policy makers, especially in designing certification policies that not only focus on improving teacher competence administratively, but also ensure that certification really has an impact on improving student learning outcomes. Although it has provided theoretical and practical research contributions, this study still has limitations that must be completed by further researchers. Some of these shortcomings include the need to add new variables to the study, and enlarge the research population.

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