

## Measuring the Impact of Certification on Kindergarten Teacher Performance: An Empirical Comparative Study

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### Abstract

**Keywords:**

Teacher  
Performance;  
Certification;  
Kindergarten.

The performance of Kindergarten teachers is not optimal and the ownership of certification is not evenly distributed in Bukit Sundi Subdistrict. The purpose of this research is to: (1) describe the performance of certified and non-certified teachers, and (2) analyze the performance differences between the two. The research uses a mixed-method approach with a sequential exploratory design. Data analysis techniques include instrument testing, descriptive analysis, classical assumption testing, and hypothesis testing. The research population consists of all kindergarten teachers in the Bukit Sundi District, with the sample determined through simple random sampling using the Slovin formula. The data collection instruments include questionnaires, observations, and documentation. The results show that the performance of certified teachers falls into the very good category (86.7%), while non-certified teachers only reach 39.9%. Hypothesis testing indicates a significant difference between the two groups ( $p < 0.05$ ). These findings indicate that certification has a significant impact on improving the performance of kindergarten teachers. This study recommends the need for enhanced training and certification programs to support the quality of early childhood education.

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### Abstrak

**Kata Kunci:**

Kinerja Guru;  
Sertifikasi;

*Penelitian ini dilatarbelakangi oleh belum optimalnya kinerja guru Taman Kanak-kanak serta belum meratanya*

Taman Kanak-  
kanak.

kepemilikan sertifikasi di Kecamatan Bukit Sundi. Tujuan penelitian ini adalah untuk: (1) mendeskripsikan kinerja guru bersertifikasi dan belum bersertifikasi, serta (2) menganalisis perbedaan kinerja di antara keduanya. Penelitian menggunakan pendekatan *mixed-method* dengan desain *sequential exploratory*. Teknik analisis data meliputi uji instrumen, analisis deskriptif, uji asumsi klasik, dan uji hipotesis. Populasi penelitian adalah seluruh guru TK di Kecamatan Bukit Sundi, dengan sampel ditentukan melalui *simple random sampling* menggunakan rumus Slovin. Instrumen pengumpulan data berupa angket, observasi, dan dokumentasi. Hasil menunjukkan bahwa kinerja guru bersertifikasi berada dalam kategori sangat baik (86,7%), sedangkan guru belum bersertifikasi hanya mencapai 39,9%. Uji hipotesis menunjukkan terdapat perbedaan signifikan antara kedua kelompok ( $p < 0,05$ ). Temuan ini menunjukkan bahwa sertifikasi memberikan pengaruh nyata terhadap peningkatan kinerja guru TK. Penelitian ini merekomendasikan perlunya peningkatan program pelatihan dan sertifikasi guna mendukung mutu pendidikan anak usia dini.

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## 1. Introduction

Early childhood education (ECE) is a strategic foundation in the development of quality human resources (Suryana, 2021). This education encompasses the process of stimulating the growth and development of children aged 0–6 years, known as the golden age, when physical, motor, socio-emotional, and language development occurs very rapidly (Dewi, 2024). According to the National Education System Law No. 20 of 2003 Article 1 Paragraph 14, Early Childhood Education (PAUD) is "an effort aimed at children from birth to six years old conducted through the provision of educational stimulation." In the context of formal education, Kindergarten (TK) becomes the main institution in the implementation of PAUD. A fun learning environment, in accordance with the characteristics of children's play, must be facilitated by teachers with professional competence. Aryani, Mudjiran and Rakimahwati (2020) emphasize that the management of learning that can interact positively with children is key to promoting optimal development.

The quality of teachers is a central element in the success of early childhood education (Hooper & Fowler, 2025). Law No. 14 of 2005 on Teachers and Lecturers, Article 8, states that teachers are required to have academic qualifications, competencies, and educator certificates. Teacher certification is a formal recognition of four main competencies: pedagogical, professional, personal, and social. The issuance of this certificate is through certification programs such as the

Teacher Professional Education (PPG), aimed at enhancing the professionalism of teachers as agents of learning (Mardhatillah & Surjanti, 2023; Nika & Rahayu, 2024). In Article 42 of Law No. 20 of 2003, it is emphasized that educators must possess minimum qualifications and the ability to achieve national education goals.

The theory of community engagement and capacity building emphasizes the importance of education in empowering communities through the enhancement of human resource competencies, including teachers (Dewi & Suriansyah, 2025). In this context, teacher certification programs can be seen as a form of science-based intervention to improve the quality of educational services to the community (Khair, 2024). According to the theory of community development, the enhancement of individual capacity through formal training in this case, professional certification can impact the quality of local institutions, including educational units (Franco & Tracey, 2019). Certification can serve as a mechanism to ensure accountability and professionalism among educators as part of the social responsibility of educational institutions (Arif et al., 2024; Hooper, 2018).

However, in practice, gaps still occur. Data from initial observations and interviews in the Solok Regency area show that not all kindergarten teachers have certification. Factors such as limited access to information, geographical location, and administrative constraints are the main obstacles. This condition has led to the existence of two groups of teachers in the field: certified teachers and non-certified teachers. In this context, it is important to objectively examine whether certified teachers perform better than non-certified ones, particularly in terms of lesson planning, implementation, and evaluation of the teaching and learning process.

Challenges in early childhood education have different characteristics compared to other levels of education. Teachers are required to implement a play-based learning approach, have high sensitivity to children's developmental stages, and possess an early childhood education background in order to design enjoyable and developmentally appropriate learning experiences. The lack of early childhood education backgrounds among some teachers complicates the delivery of quality instruction. In Bukit Sundi District, Solok Regency, observation results indicate issues such as teacher tardiness, inappropriate use of learning media, and teaching practices that do not align with the teaching module. This condition indicates that without knowledge-based interventions such as targeted certification programs and professional training, improving the quality of early childhood education will be difficult to achieve.

Based on interviews with supervisors, school principals, and heads of the Early Childhood Education sector in Solok Regency, there are indications that although certification impacts the improvement of learning quality, not all certified teachers demonstrate superior performance, and conversely, there are non-certified teachers who show dedication and good performance. This phenomenon indicates a need for more in-depth analysis. Several empirical studies, such as those conducted by (Dacholfany et al., 2024; Widodo, 2025), also show

that teacher certification contributes to the improvement of learning quality, although work experience and motivation remain factors that also influence it. Previous research has mostly discussed the impact of certification in general, but not many have empirically compared the performance of certified and non-certified teachers in the context of early childhood education in non-urban areas like Solok

In the Bukit Sundi District, Solok Regency, challenges in teacher performance that have not yet been optimized are still found. Based on the observation results, several issues were found, such as teacher tardiness, inappropriate use of teaching media, and the implementation of lessons not adhering to the teaching module. In addition, some teachers do not have a background in early childhood education. This situation raises concerns that without science-based interventions such as certification programs and professional training, the quality of early childhood education will be difficult to improve.

Based on this background, this study aims to conduct a comparative analysis of the performance of certified and non-certified kindergarten teachers in Solok Regency. This research is important to evaluate the extent to which the certification policy has a real impact on the quality of education, as well as to serve as a basis for local governments and stakeholders in designing sustainable teacher professionalism development programs. This research also contributes to strengthening education-based community engagement practices by enhancing human resource capacity through competency-based interventions.

## **2. Methods**

The approach used in this research is a mixed method with a sequential exploratory design or a combination model with an instrument development model (Creswell & Creswell, 2017). The instrument development model is used to develop and implement quantitative instruments to clarify qualitative findings. Combination research with a sequential explanatory design is research that sequentially combines quantitative and qualitative research approaches, where the first stage of the research is conducted using a quantitative approach and the second stage is conducted using a qualitative approach (Johnson & Christensen, 2014). The quantitative approach serves to obtain measurable quantitative data, which can be descriptive, comparative, and associative, while the qualitative approach serves to prove, deepen, and expand the quantitative data obtained in the initial stage (Ali, 2022).

The population of this study consists of all kindergarten teachers in Bukit Sundi District, totaling 52 individuals, comprising 23 certified teachers and 29 uncertified teachers. In this study, the author used the simple random sampling technique. According to Sugiyono (2020), the simple random sampling technique is a method of sampling from the population members conducted randomly without considering the strata present in that population. Thus, the sample obtained from this study consists of 46 Kindergarten teachers.

The data collection techniques used consist of: 1) Questionnaire; 2) Observation; 3) Interview; and 4) Documentation. The questionnaire created contains a list of questions presented to respondents to fill out, which are then returned to the author for analysis and processing based on the obtained data. Observation is used when the research pertains to human behavior, work processes, natural phenomena, and when the number of respondents being observed is not too large. Interviews are a method of data collection through direct question-and-answer sessions between the researcher and the respondent to obtain in-depth data. Documentation is one of the techniques for collecting data that allows for the disclosure of attention to information that has been systematized and continuously updated.

Meanwhile, the research instruments consist of: 1) Questionnaire instruments; and 2) Documentation instruments. The data analysis technique uses a combined analysis, both quantitatively and qualitatively. Quantitative data analysis employs the SPSS 22 application. Qualitative analysis uses data triangulation techniques to ensure that the findings in this research are accurate and reliable.

### **3. Result and Discussion**

The results of this study aim to determine: (1) The performance of certified Kindergarten teachers; (2) The performance of non-certified Kindergarten teachers; (3) The difference in performance between certified and non-certified Kindergarten teachers in Bukit Sundi District. The data collection instrument was directly administered to Kindergarten teachers in Bukit Sundi District through a questionnaire to obtain data related to the performance of certified and non-certified Kindergarten teachers. The score for the answers on the questionnaire instrument is as follows: Never (TP) receives a score of one, Rarely (JR) receives a score of two, Often (SR) receives a score of three, Always (SL) receives a score of four. The categorization of data in this study uses percentage levels, as follows: A percentage interval from 81% to 100% is categorized as very good; 63% to 80% is categorized as good; 44% to 62% is categorized as fairly good; 25% to 43% is categorized as poor. The analysis in this study includes: instrument test analysis, descriptive analysis; classical assumption test analysis, and; hypothesis test analysis.

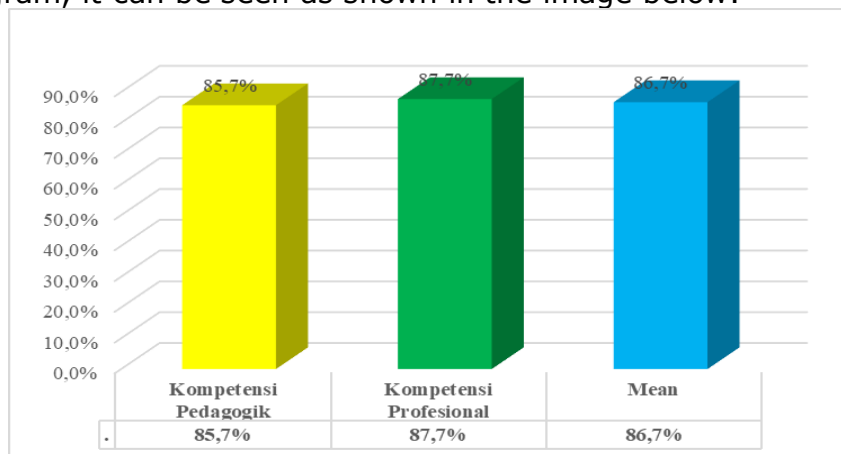
#### **Quantitative Descriptive Analysis**

Descriptive analysis is an analysis used to describe research data. In this study, the data is described in terms of frequency, mean value, and percentage. The data described are: (1) the performance of certified kindergarten teachers; (2) the performance of non-certified kindergarten teachers; and (3) the comparison of the performance of certified and non-certified kindergarten teachers in Bukit Sundi District, Solok Regency. The depiction of the performance of certified kindergarten teachers in Bukit Sundi District, Solok Regency, studied includes two indicators, namely: (a) pedagogical competence, and (b) professional competence. The percentage results of these two indicators can be seen in the recap table below:

**Table 1. Recapitulation of Indicator Percentage from the Performance of Certified Kindergarten Teachers (X1)**

No.	Indicator	Percentage (%)	Categori
	Pedagogical Competence	85,7%	Very Good
	Professional Competence	87,7%	Very Good
	Mean	86,7%	Very Good

Based on Table 1, the performance of certified kindergarten teachers in Bukit Sundi District, Solok Regency, is as follows: (a) The pedagogical competence indicator received a percentage score of 85.7%, categorized as very good, and; (b) the professional competence indicator received a percentage score of 87.7%, categorized as very good. The average percentage of these two indicators is 86.7%. If the recapitalization table of the performance indicators of certified kindergarten teachers is illustrated in the form of a diagram, it can be seen as shown in the image below:



**Figure 1. Recapitulation Diagram of Indicator Percentages from the Performance of Certified Kindergarten Teachers (X1)**

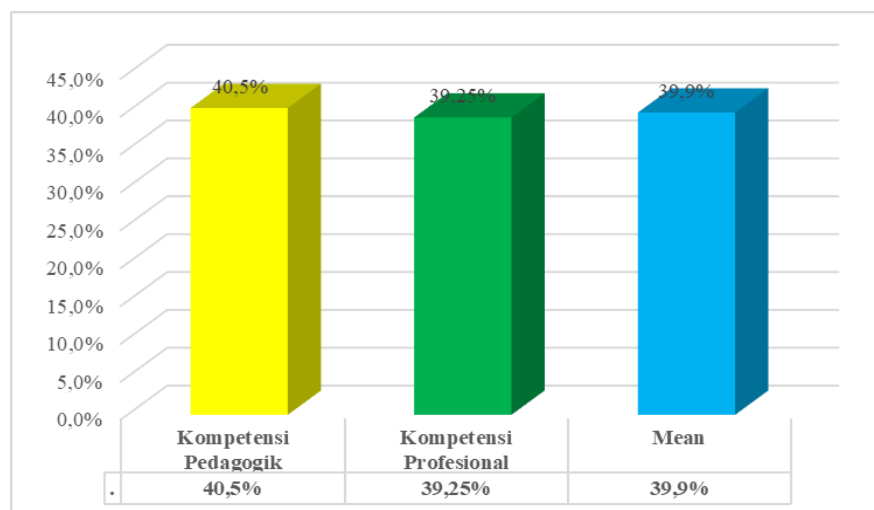
Based on Table 1 and Figure 1, it can be seen overall that the average percentage value (mean indicator) obtained is 86.7%, which is categorized as very good. Therefore, from this analysis, it can be concluded that certified kindergarten teachers have very good performance in Bukit Sundi District, Solok Regency.

An overview of the performance of non-certified kindergarten teachers in Bukit Sundi District, Solok Regency, which was studied, includes two indicators, namely: (a) pedagogical competence, and; (b) professional competence. The percentage results of these two indicators can be seen in the recap table below:

**Table 2. Recap of Percentage Indicators from the Performance of Non-Certified Kindergarten Teachers (X2)**

No.	Indicator	Percentage (%)	Categori
	Pedagogical Competence	40,5%	Not Good
	Professional Competence	39,25%	Not Good
	Mean	39,9%	Not Good

Based on Table 2, the performance of non-certified kindergarten teachers in Bukit Sundi District, Solok Regency, is as follows: (a) The pedagogical competence indicator received a percentage value of 40.5%, categorized as poor, and; (b) the professional competence indicator received a percentage value of 39.25%, also categorized as poor. The average percentage of these two indicators is 39.9%. If the recapitalization table of the percentage indicators of the performance of non-certified kindergarten teachers is illustrated in the form of a diagram, it can be seen as shown in the image below:



**Figure 2. Percentage Indicator Diagram of the Performance of Non-Certified Kindergarten Teachers (X2)**

Based on table 2 and figure 2, it can be concluded that the overall average percentage value (mean indicator) obtained is 39.9%, which is categorized as less satisfactory. Therefore, from this analysis, it can be concluded that non-certified kindergarten teachers have poor performance in Bukit Sundi District, Solok Regency.

### **Comparison of the Performance of Certified and Non-Certified Kindergarten Teachers in Bukit Sundi District, Solok Regency**

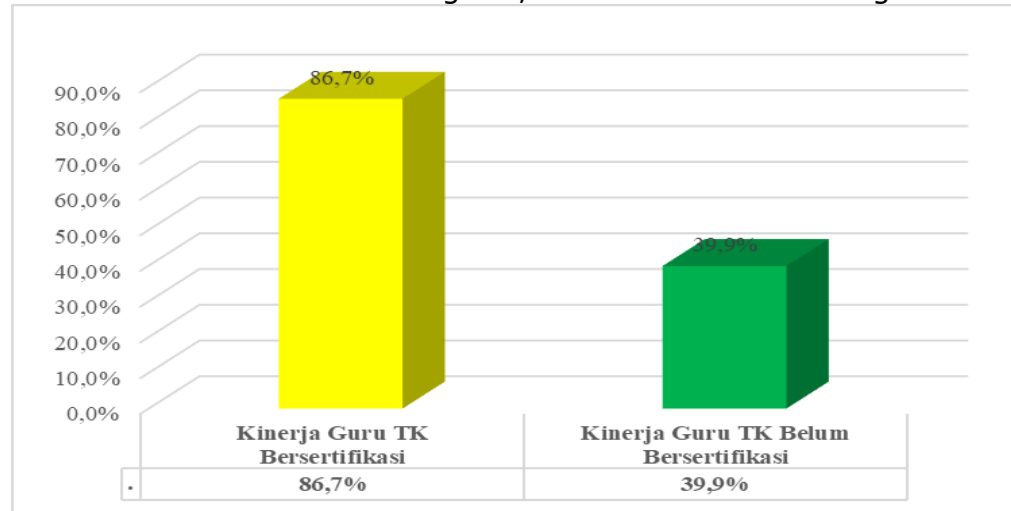
An overview of the comparison of the performance of certified and non-certified kindergarten teachers in Bukit Sundi District, Solok Regency can be seen in the following table:

**Table 3. Percentage Comparison of the Performance of Certified and Non-Certified Kindergarten Teachers**

No.	Teacher Performance	Percentage (%)	Categori
	Certified Kindergarten Teacher Performance	86,7%	Very Good
	Non-Certified Kindergarten Teacher Performance	39,9%	Not Good

Based on Table 3, the performance of kindergarten teachers in Bukit Sundi District, Solok Regency, is as follows: (a) The performance of certified kindergarten teachers received a percentage score of 86.7%, categorized as very good; (b) The performance of non-certified kindergarten teachers received a percentage score of 39.9%,

categorized as poor. If the percentage comparison table of the performance of certified and non-certified kindergarten teachers is illustrated in the form of a diagram, it will look like the image below:



**Figure 3. Percentage Comparison Diagram of Certified and Non-Certified Kindergarten Teacher Performance**

Based on Table 3 and Figure 3, it can be observed that there is a difference in percentage values obtained from the two groups of data (Certified and Non-Certified Kindergarten Teachers). Therefore, based on the percentage values, it can be concluded, "There is a difference between the performance of certified and non-certified kindergarten teachers in Bukit Sundi District."

### **Qualitative Descriptive Analysis (Observation)**

This research complements the quantitative findings regarding the differences in performance between certified and non-certified kindergarten teachers in Bukit Sundi District, Solok Regency. Field observations were conducted from April to May 2025 in several kindergartens in the Bukit Sundi District, focusing on teaching practices, interactions with students, classroom management, and resource utilization by teachers from both groups.

Observations show that certified kindergarten teachers consistently demonstrate very good performance, in line with the 86.7% percentage obtained from quantitative data. Teachers demonstrate a high level of adaptability in facing classroom dynamics, as well as a strong mastery of teaching materials and pedagogical methods. In teaching practice, certified teachers are often seen applying various innovative and interactive teaching strategies. For example, teachers actively use various learning media such as educational props, songs, and games to facilitate concept understanding in early childhood. The interaction between the teacher and students tends to be positive, encouraging, and responsive to the individual needs of the children. The teacher is able to manage classroom behavior effectively through persuasive approaches and positive reinforcement, creating a conducive and enjoyable learning environment. Additionally, certified teachers also appear proactive in preparing structured learning materials and evaluations,



demonstrating thorough planning. Teachers also appear more confident in facing challenges in the classroom and demonstrate the ability to solve problems creatively.

On the other hand, observations of non-certified kindergarten teachers revealed several challenges in teacher performance, which align with the 39.9% (poor) percentage from the quantitative data. Although they have good intentions, teachers often appear to be less varied in their teaching methods and tend to rely on more traditional or monotonous approaches.

Some observations indicate that the teachers in this group underutilize diverse learning media, making the lessons sometimes less engaging for the children. Interactions with students tend to be more one-sided, with teachers giving more instructions than facilitating exploration and discussion. In classroom management, some uncertified teachers appear less effective in handling difficult student behavior, which sometimes results in a less controlled classroom atmosphere. Teachers also often struggle to develop comprehensive Lesson Plans (RPP) and adapt them to the developmental characteristics of early childhood. This may indicate limitations in a deep understanding of relevant early childhood education theories and practices.

Overall, this qualitative observation reinforces the quantitative findings that there are significant differences between the performance of certified and non-certified kindergarten teachers. This difference is not only evident in the technical aspects of teaching but also in the teachers' ability to create an optimal learning environment, manage classroom dynamics, and demonstrate professionalism in planning and implementing lessons. Certified teachers demonstrate a higher level of independence and innovation, while non-certified teachers still require support and further development in these aspects. This indicates that the teacher certification program may provide practical knowledge and skills that significantly impact the quality of teachers' performance in the field. Here is the research documentation with the teacher:



Figure 4. Documentation with teachers in Solok Regency

Hypothesis testing in research requires classical assumptions consisting of data normality tests and homogeneity tests. The classical assumption results for the normality test obtained a value of Certified

Teachers (X1) of  $0.081 > 0.05$ , so the data can be considered normal. Meanwhile, the normality test value for Non-Certified Teachers (X2) was  $0.098 > 0.05$ , indicating that the data is normally distributed. Next, a homogeneity test is conducted to determine whether the data is homogeneous or relatively similar, as differences will arise later if the data is indeed not homogeneous. From the results of the homogeneity test, a sig value of  $0.463 > 0.05$  was obtained, which means both data variances can be stated as homogeneous. Then a hypothesis test was conducted. The hypothesis test in this study uses the Independent Samples t-Test analysis with the help of the Statistical Program for Social Science (SPSS) application, the results of which can be seen in the table below:

**Tabel 4. Independent Samples t-Test**

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Kinerja_Guru_TK	Equal variances assumed	,547	,463	33,042	44	,000	31,658	,958	29,727	33,589
	Equal variances not assumed			34,661	43,529	,000	31,658	,913	29,816	33,499

Based on the SPSS Independent Samples t-Test table and the hypothesis test explanation table above, the obtained significance value is:  $0 < 0.05$ , which means there is a difference. Based on the results, it can be stated that H1 is accepted, while H0 is rejected, which means: "There is a significant difference between the performance of certified and non-certified kindergarten teachers in Bukit Sundi District."

## **Discussion**

The discussion in this study highlights the differences in the performance of Kindergarten teachers in Bukit Sundi District based on certification status. The results show that teachers who have certification demonstrate very good performance with a percentage of 86.7%. This finding indicates that the teacher certification program has a tangible impact on improving the professionalism quality of early childhood education (PAUD) teachers. This is in line with the research findings of (Fitri & Chotimah, 2024), which state that certified teachers tend to have a better understanding of child development, innovative teaching strategies, and effective classroom management. Certification is one of the indicators of teacher professionalism because through this process, teachers receive systematic pedagogical training, competency tests, and capacity building in designing and evaluating learning comprehensively. The implications of this good performance are evident in the creation of a positive, interactive learning environment that supports optimal child development, as also found by Hastuti & Iswatiningsih (2025) in her study on the quality of learning environments in early childhood education (PAUD).

Conversely, the performance of non-certified teachers shows poor results, with a percentage of 39.9%. This low performance is closely related to the limited access to formal training and professional mentoring. Teachers who are not yet certified tend to have difficulty in preparing effective lesson plans, applying child-centered learning approaches, and conducting holistic developmental assessments. Research by Novitasari et al., (2024) also emphasizes that teachers who have not participated in the certification program have limitations in aspects of material mastery, teaching methods, and the application of character education values. As a result, early childhood children guided by non-certified teachers are at risk of not receiving optimal educational services, whether in cognitive, socio-emotional, or motor aspects. Muthmainnah et al., (2023) also highlight that the quality of teachers greatly influences children's active engagement in the learning process and the development of 21st-century skills, so the disparity in teacher quality will impact the inequality in children's learning outcomes.

The significant difference between the performance of certified and non-certified teachers is reinforced by the results of the Independent Samples t-Test analysis with a significance value of  $0 < 0.05$ . These findings provide empirical evidence that the certification status of teachers is strongly correlated with the quality of their performance in the field. Certification is not just an administrative formality, but a representation of teachers' professional competence in carrying out their duties as early childhood educators. (Layly et al., 2024) in his research emphasizes that teachers who undergo the certification process experience a significant improvement in their ability to design lesson plans, implement scientific approaches, and enhance positive interactions with students. This difference also directly impacts the children's learning experience in the classroom:

children taught by certified teachers tend to experience more structured, varied, and developmentally appropriate learning. Therefore, the increase in the number of certified teachers must be accompanied by the quality of the certification program implementation itself, as suggested by Ragil et al., (2025), namely by emphasizing the quality of training substance and continuous post-certification evaluation.

However, while certification plays a crucial role, it is not the sole determinant of teacher performance. Other factors, such as teaching experience, intrinsic motivation, principal supervision, and the institutional environment, also contribute significantly to performance outcomes. Teachers with longer teaching experience often have more adaptive classroom management skills and contextual understanding, even without certification. Similarly, high motivation can encourage teachers to seek innovative teaching strategies and professional development opportunities independently. Effective principal supervision ensures that teachers receive constructive feedback and ongoing support, while a supportive institutional environment fosters collaboration, resource sharing, and continuous learning. Therefore, increasing the number of certified teachers should go hand-in-hand with strengthening these supporting factors, as suggested by (Ragil et al., 2025), through the enhancement of training quality, continuous post-certification evaluation, and the integration of school-level support systems.

#### **4. Conclusion**

Based on the results of data analysis and discussion, this study concludes that there is a significant difference in performance between certified and non-certified kindergarten teachers in Bukit Sundi District, Solok Regency. Certified teachers demonstrate better performance, especially in lesson planning, implementing innovative methods, classroom management, and assessing child development, while uncertified teachers tend to have limitations in these aspects. This finding confirms that certification contributes positively to the improvement of teacher professionalism. Therefore, it is recommended that local governments and education stakeholders expand access to certification programs, improve training quality, and provide ongoing mentoring for teachers. This research is limited to the geographical scope of one sub-district and specific performance indicators, so further research is recommended to involve a wider area and variables.

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