



ISSN : 2722-7944 (Online)

Point of View Research Economic Development

<https://journal.accountingpointofview.id/index.php/povred>



Analysis Of Pedagogic Competence And Training Through Certification On The Performance Of Paud Teachers In Taman Children Of Tallo District, Makassar

Andi Rofiah Iffayana¹ ; Piter Tiong² ; Dian Indriani³

^{1,2,3} STIE Amkop Makassar, South Sulawesi, Indonesia

Abstract

Objective : Early childhood education (PAUD) is a level of education that underlies the level of elementary education. PAUD aims to prepare children with the skills and knowledge needed when entering elementary education, in addition to trying to help students achieve their full potential so that they can become individuals who believe and fear God Almighty, have noble character, are healthy, intelligent, independent , and have the spirit of Pancasila. The role of PAUD can create a good foundation for formal education, prepare children mentally and emotionally and can equip students with basic skills to be successful at the next level of education. The purpose of this research is to determine the effect of pedagogical competence and training through educator certification on the performance of PAUD teachers at Kindergartens in Tallo District, Makassar. Method : The research approach uses quantitative research, while data collection techniques include literature studies, questionnaires, observations and documentation. The selected sample is a Kindergarten teacher who is determined as many as 107 people, while data analysis methods include validity and reliability tests, classical assumption tests and path analysis. Results: The results of this study indicate that pedagogical competence has a real impact on teacher certification, training has a real impact on teacher certification, competence has a real impact on teacher performance, training has a real impact on teacher performance, certification has a real impact on teacher performance, certification can mediate the influence of competence on teacher performance, and certification can mediate the influence of training on teacher performance.

This is an open access article under the [CC BY 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

© Point of View Research Economic Development (2024)

Keyword :

pedagogical competence, training, certification and teacher performance

Email Address :

andirofiahiffayana@gmail.com

1 Introduction

Early childhood education (PAUD) is a level of education that underlies the level of elementary education. PAUD aims to prepare children with the skills and knowledge needed when entering elementary education, in addition to trying to help students achieve their full potential so that they can become individuals who believe and fear God Almighty, have noble morals, are healthy, intelligent, independent , and have the spirit of Pancasila. The issue of early childhood education (PAUD) plays an important role in Indonesia, because this education plays an important role in shaping the early development of children where it can help children to develop their potential optimally both in terms of physical, mental, emotional, and social.

The role of PAUD can create a good foundation for formal education, prepare children mentally and emotionally and can equip students with basic skills to be successful at the next level of education. PAUD education is an important foundation for building the future of children's education in Indonesia, but in the implementation of PAUD education in Indonesia, there are still a number of major problems, namely accessibility and availability of PAUD programs, especially in remote areas.

These obstacles are often accompanied by a lack of facilities and qualified teachers. The quality of PAUD teachers is also an important issue, because not all teachers have adequate qualifications and skills. In addition, there is a tendency for PAUD education to focus too much on academic aspects, while aspects of holistic child development, such as creativity and social skills, do not receive enough attention. The success of the implementation of PAUD education in Indonesia is highly dependent on teacher performance. Teacher performance in the implementation of early childhood education (PAUD) in Indonesia has a central role in forming the foundation for children's development. PAUD teachers are not only as conveyors of information but also as facilitators who play an important role in forming children's character, skills, and positive attitudes.

This early development stage shows that teacher interaction with students greatly influences children's learning patterns and behavior. Teachers' creativity in designing learning activities that stimulate children's imagination and skills and their ability to understand students' individual needs will form a strong foundation for further learning. The role of PAUD teachers is to build positive relationships with parents so that children's education can be an effort to establish cooperation between home and school.

The problem of early childhood education in Indonesia can determine the quality of future human resources, so it can be said that teacher performance is a key factor in achieving national education development goals. Attention and investment in developing the quality of early childhood education teachers are important to create a strong foundation for the development of quality Indonesian people. However, related to the problem of teacher performance in organizing early childhood education in Indonesia is the lack of adequate qualifications and training for most early childhood education teachers. Many early childhood education teachers lack in-depth knowledge about child development, appropriate teaching methods and how to design a stimulating learning environment.

This condition can affect the quality of education provided to children at this critical stage of development. Lack of support and facilities from the government is also a serious problem. PAUD teachers need better guidance and support in terms of developing appropriate curriculum, learning resources, and further training. In addition, adequate educational infrastructure, such as classrooms that meet standards, is also an important factor that impacts the performance of PAUD teachers.

Problems regarding teacher performance in organizing PAUD education include a number of factors that impact teacher certification and teacher performance, namely pedagogical competence and training. It can be seen that the problem of pedagogical competence refers to the teacher's capacity to understand students, develop strategies and implement learning activities, foster student development, and assess learning outcomes to help students achieve their maximum potential. Pedagogical competence is a crucial factor in determining teacher certification, because it is one of the essential talents that teachers must have to achieve certification.

Pedagogical competence refers to the ability of educators to understand and apply educational theory and practice. In the process aspect, pedagogical competence influences the educator certification process. Teachers with high pedagogical competence will find it easier to understand and follow the educator certification process. This is because teachers can have a good understanding of educational learning theories and practices. This can be seen from research by Tamrin *et al.*, (2023) that teacher competence influences the graduation of teacher certification. The problem of pedagogical competence not only affects educator certification but also teacher performance, where in constructivism theory it is an active process for students to build their own knowledge.

Students gain knowledge not only through teacher instruction but also by actively engaging with their environment, which allows them to develop their own understanding. Therefore, teachers must have high pedagogical competence. This is useful so that efficient learning can take place. Pedagogical competence is the competence that teachers should have in understanding and applying educational learning theories and practices.

Some previous research results, namely Wahyuningsih and Retnaningtyas (2021), Sitinjak *et al.*, (2022) that pedagogical competence has a real impact on teacher performance. However, research by Latif *et al.*, (2017) that pedagogical competence does not have an impact on teacher performance. With the absence of conformity in previous researchers, there is a gap that was carried out by previous researchers. Another factor that has an impact on teacher certification and teacher performance is teacher training which is useful for

improving teacher competence and professionalism. Teacher training can be carried out by various parties, both government and educational institutions.

Previous research, namely the influence of training on teacher certification as conducted by Zulfahmi *et al.*, (2022) , and Tamrin *et al.*, (2023) research results that training has a real impact on teacher certificates. Meanwhile, training also has a significant effect on teacher performance, where Risdiantoro (2021) found that training has an impact on teacher performance. However, Putra *et al.*, (2019) that the training had no real impact on teacher performance, thus there was *inconsistency in the research* carried out by the two previous researchers.

Educator certification is the process of evaluating and recognizing teacher competence in designing, implementing, and evaluating the educational process, as well as providing direction and instruction to students . Educator certification is carried out by the government through the Education Quality Assurance Institute (LPMP). The problem of educator certification can improve teacher competence, motivation, work enthusiasm, and welfare. This has an impact on improving the quality of learning and student learning outcomes. Several researchers, namely Zulfahmi *et al.*, (2022) , Lakapung *et al.*, (2023) that educator certification has a significant impact on teacher performance. However, Supriyatno *et al.*, (2016) could not prove that educator certification had a significant effect on teacher performance.

Based on the results of previous researchers as stated above, the research to be studied found that there was still a research gap, so that what is new (novelty) in this research is adding teacher certification as a mediating variable. The reason is because teacher certification is a process that aims to improve teacher pedagogical competence. Pedagogical competence is a skill that teachers should have in carrying out their duties professionally. Pedagogical competence includes the teacher's capacity to understand student quality, develop curriculum, and implement efficient learning strategies . And besides that, there are still few previous researchers who have investigated the impact of teacher competence and training, especially through the mediating variable of teacher certification, on teacher performance , while teacher certification can be a mediating variable for the influence of pedagogical competence and training on teacher performance because teacher certification can optimize teacher pedagogical competence which can have an impact on teacher performance.

Related to the explanation above, the object of the previous research was a kindergarten in Tallo sub-district in Makassar which organizes preschool education, where in the implementation of education so far it has faced problems that a number of teachers who work as educators have mostly not passed teacher certification, and in addition, every teacher who works in the process of organizing kindergarten education is considered to have not followed the training so that it has an impact on the competence they have in implementing the education learning process. Therefore, the number of certified teachers who are considered to be still low and there are still teachers who do not follow the training, so that it has an impact on teacher performance that deviates from the standards set by the principal .

2. Literature Review

A. Pedagogical Competence

Teachers must have extraordinary skills in their respective fields, including pedagogical, personality, social and professional competencies. Pedagogical competence is the main skill that PAUD teachers must have in Permendikbud no. 137 of 2014 in order to be able to compile Learning Implementation Plans (RPP) effectively. Pedagogical competence is a skill that must be possessed by all teachers, regardless of their level of education. In the explanation of Law of the Republic of Indonesia Number 14 of 2005 article 10 paragraph 1 concerning Teachers and Lecturers, pedagogical competence is the ability to guide and foster student learning effectively. Teachers who have pedagogical competence are teachers who have the ability to supervise and guide students effectively. In the context of a comprehensive and integrated education system, pedagogical competence places students as important stakeholders who have rights and responsibilities (Divha, 2022:300) .

Normawati *et al.*, (2019:4) stated that pedagogical competence is an important type of competence that must be possessed and mastered by teachers. Pedagogical competence refers to the teacher's capacity to monitor and direct student learning effectively. Pedagogical competence is a special skill that distinguishes teachers from other professions and plays a crucial role in determining the effectiveness of the learning process and the achievement of their students. This competence is not obtained in an instant, but through continuous and methodical learning efforts, both at the pre-service stage (teacher candidate education) or during a person's term of office, depending on innate teaching abilities and other interests and talents.

Pedagogical competence refers to the teacher's capacity to effectively supervise the teaching and learning process. It is a special skill that distinguishes teachers from other professions. others. The indicators of pedagogical competence as stated by Rachmawati *et al.*, (2021:28) between other :

1. Get to know the characteristics of students.
2. Mastering learning theories and principles of the learning process.
3. Able to develop curriculum.
4. Able to create educational learning activities.
5. Understanding and developing students' potential.
6. Have the ability to communicate with students.

B. Training

Every organization aspires to maintain continuous improvement and progress. To achieve organizational goals. Organizations must employ individuals who have the necessary qualifications and skills. To improve the quality of personnel, organizations can apply a single approach, especially by offering training to new and existing employees. Sulila *et al.*, (2023:36) express the understanding of training as a deliberate organizational activity that is useful for improving and fostering employee attitudes, behaviors, abilities, and knowledge to improve work performance results.

Training is a deliberate effort aimed at improving the direct abilities of employees, enabling them to effectively carry out specific job activities or responsibilities in the work environment, preventing skill obsolescence at all levels of the organization (Rustandi, 2023:27) .

Moekijat in Tahir *et al.*, (2022:30) Tahir emphasized that the purpose of training is to:

1. Acquire specific skills to increase productivity and efficiency in completing tasks.
2. Acquire knowledge to perform work logically and systematically.
3. Cultivate a cooperative mindset to collaborate effectively with coworkers and superiors.

According to Artha (2022:22) Effective training will produce high quality and practical results, if it meets the specified training indicators, namely:

1. Training Participants

The effectiveness of a training program is largely influenced by the characteristics and involvement of the participants. To successfully implement a training strategy, it is important to consider the training participants. The goal is to facilitate the selection of appropriate resources for the participants, thereby simplifying the process for the facilitator .

2. Instructor or Speaker

Instructors or speakers are individuals who act as training facilitators, with the main role of facilitating the training process . Training speakers or instructors must have the quality or ability to understand the needs of participants, create a conducive and optimistic learning environment, meet the skills and abilities of participants, improve teaching methodology, and simplify the teaching and learning process. Show appreciation to participants and have expertise in the field of teaching as a trainer.

3. Training Materials

The training material is aligned with the expected objectives, ensuring that any challenges or expectations can be addressed effectively through the training activities carried out .

4. Training media

It is the most important element in training management. Because training media functions as a complementary component of the training process in conveying information provided by the speaker to participants, and training media can also function as a tool to motivate participants in participating in training. Utilizing learning media in an appropriate and efficient manner will greatly improve the training process .

5. Training Methods

Training methods are systematic approaches used to carry out well-organized plans consisting of real and applicable activities to achieve specific learning objectives .

6. Training Objectives

The determination of training objectives is carried out before the start of the training session. The first determination aims to ensure that the implementation of training activities can be carried out in the most efficient way to improve individual skills, thereby facilitating the development of high-quality human resources. Training, in essence, aims to improve the knowledge, abilities and behaviors of individuals, which can then be used effectively in their daily professional endeavors .

C. Educator Certification

According to Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers, certification is defined as a formal procedure for granting the title of educator to teachers and lecturers. Teacher certificates serve as formal documents that recognize teachers and lecturers as professional staff. Teacher certification is a formal recognition of a person's ability to provide educational services in an educational institution. This recognition is given after successfully completing a competency test conducted by a certification institution (Wijaya *et al.*, 2023:173) .

According to Warami (2022:90) certification is a strict assessment procedure that aims to assess a person's skills in certain competencies. Certification serves as the basis for granting teacher certificates, which ensures that certification is given to educators who meet the certification requirements and demonstrate the necessary skills and knowledge . Teacher certification is the act of granting certificates to teachers who have demonstrated their professional competence as educators, which serves as evidence or recognition of their abilities.

Teacher certification is a formal procedure for granting recognition, in the form of a teacher certificate, to someone who has the skills and qualifications necessary to effectively fulfill the role of an educator , who meets the educational criteria set at a certain level . According to Franky and Savira (2021) the indicators of teacher certification in this study are:

1. Academic qualifications, which are determined by the highest level of education achieved by the teacher during the certification process .
2. Teaching experience, which is determined by the length of the teacher's tenure .
3. Planning and implementation of learning, which is proven by the preparation of a methodical learning implementation plan (RPP) .
4. Assessment from leaders and supervisors, which is determined by evaluating their performance in the classroom and school environment .
5. Professional development work, refers to actions taken by teachers to improve their skills and abilities as educators .
6. Participation in scientific forums, namely seen from whether the teacher has ever participated in a scientific forum.
7. Awards relevant to the field of education, namely determined by whether teachers have achieved and received awards relevant to their academic discipline .

D. Teacher Performance

Teacher performance refers to the teacher's ability to create an engaging and influential learning experience. Teacher performance is considered satisfactory and commendable if the results achieved are in line with predetermined benchmarks (Supiani, 2022:10) . Teacher performance is defined

by Aslam *et al.*, (2023:48) as the result of a job during a certain period of time and a synergistic combination can be reflected in productivity when carrying out goals and work, can be realized to obtain high teacher performance and the principal encourages to improve themselves in fulfilling the use of media, learning processes, and evaluations as a completeness of professional teacher skills.

Performance appraisal can provide valuable feedback for teachers, allowing them to improve and optimize their performance. Teacher performance appraisal will support teachers in gaining a comprehensive understanding of their responsibilities, allowing them to successfully facilitate student learning and enhance their own professional development (Salfiyadi, 2021:28) .

Teacher performance refers to the results achieved by teachers when they successfully carry out high-quality teaching responsibilities. Teacher performance refers to the implementation of teaching tasks and is measured using four indicators, as identified by Hafidulloh *et al.*, (2021:58) , among others:

1. Performance in learning planning.
2. Performance in implementing learning.
3. Performance in learning assessment.
4. Performance in professional development.

3. Research Methods

The research methodology uses quantitative techniques. Sudirman's opinion (2020:90) states that quantitative research refers to the type of research that involves conducting experiments and collecting numerical data, which is then evaluated using statistical methods to obtain results and draw conclusions . The location of this research was carried out at the Tallo District Kindergarten, Makassar.

The population studied 30 kindergarten schools in Tallo sub-district with 107 teachers including 94 ASN teachers and 13 non-ASN teachers. The data collection methodology was through literature studies, questionnaires, observations and documentation. While the data analysis method was through path analysis (path test).

From the explanation of the relationship between the variables that have been explained above, the conceptual framework can be visualized through the image below:

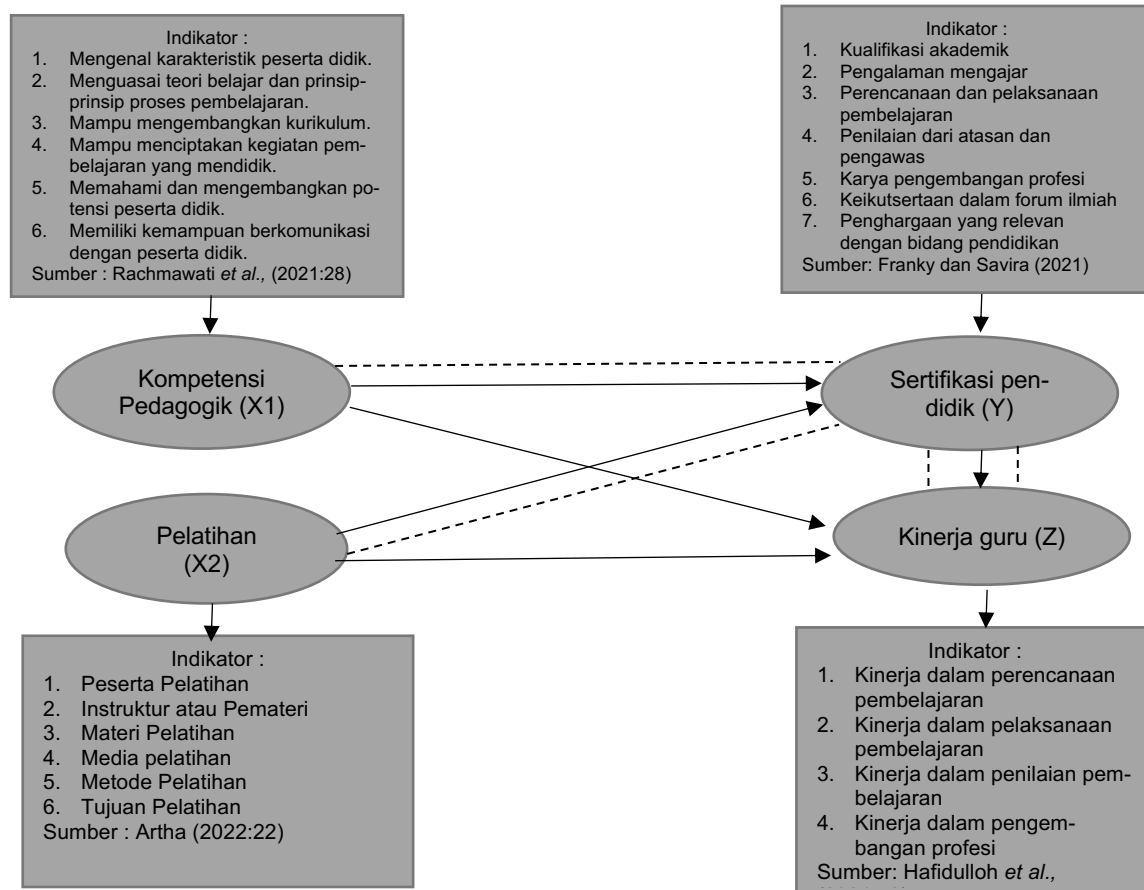


Figure 1. Conceptual Framework

4. Research Results

Path Analysis

After studying the research data and instrument test findings, path analysis will be presented. Path analysis is a component of the multiple linear regression model that is useful for examining the causal relationship between two variables. Path analysis uses correlation, multiple regression, and paths to determine the final dependent variable. This can be achieved either through a direct path or by using an intermediary variable .

Before conducting path analysis, the results of the path test analysis will be presented using multiple linear regression equation analysis. This analysis includes two tests, namely model 1 testing which tests the effect of pedagogical competence and training on teacher certification, and model 2 testing which tests the effect of pedagogical competence, training, and teacher certification on the performance of PAUD teachers in TK Tallo District, Makassar. This test is processed using the SPSS version 26 program and the results will be displayed in the following table:

Table 1. Regression and Correlation Equation Analysis of Testing Model 1 and Testing Model 2

Model	Information	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>	t	Sign.
		B	Std. Error	Beta		
1	(Constant)	6,346	2.404		2,640	0.010
	Pedagogical Competence	0.390	0.120	0.317	3.249	0.002
	Training	0.540	0.122	0.431	4.425	0.000
	R	R Square	Adjusted R Square	Std. Error of the Estimate		
	0.688	0.473	0.463	2,744		
2	(Constant)	0.563	1.285		0.438	0.662
	Pedagogical Competence	0.153	0.065	0.206	2,341	0.021
	Training	0.158	0.069	0.209	2.291	0.024
	Educator Certification	0.283	0.051	0.471	5,584	0.000
	R	R Square	Adjusted R Square	Std. Error of the Estimate		
	0.784	0.614	0.603	1,420		

Source: Data processed using SPSS Program, 2023

According to table 1, the results of the path test can be displayed in figure 2:

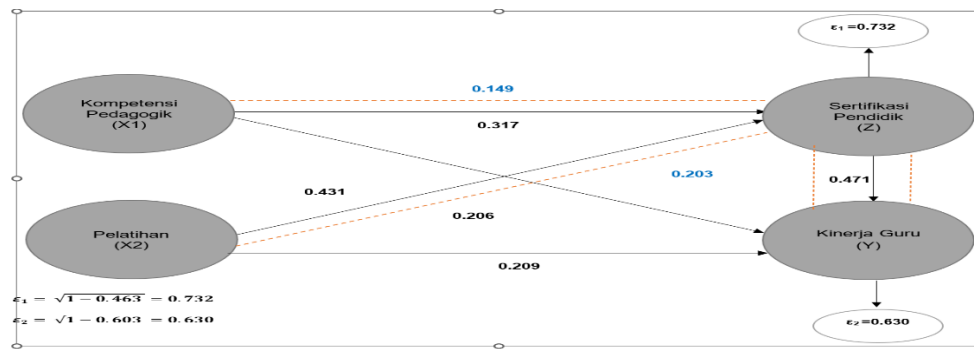


Figure 2. Track Test Results

Source: Data processed from SPSS results, 2024

The results of the path analysis as depicted in Figure 2 can be expressed in the path equation in this research, namely:

$$Z = 0.317X_1 + 0.431X_2$$

$$Y = 0.206X_1 + 0.209X_2 + 0.471Z$$

1) The influence of pedagogical competence and training on teacher certification (Model 1)

a. The influence of pedagogical competence on teacher certification in Kindergartens in Tallo District, Makassar

From the findings of data analysis in this research, the path coefficient value (Beta) for pedagogical competence = 0.317 was obtained. This explains that pedagogical competence has a positive impact on teacher certification in Kindergartens in Tallo District, Makassar. The findings of the partial test (t-test) obtained a sig value of 0.002, if the sig value. 0.002 is below 0.05, it means that pedagogical competence has a real impact on teacher certification. The results of this research explain that the high pedagogical competence that early childhood education teachers have will increase the opportunity to obtain teacher certification for early childhood education teachers who teach at Kindergartens in Tallo District, Makassar.

b. The influence of training on teacher certification at the Tallo District Kindergarten, Makassar

From the results of the path test analysis, the path coefficient value (Beta) for training = 0.431 was obtained. This explains that training has a positive influence on teacher certification at Kindergartens in Tallo District, Makassar. The findings of the partial test (t-test) obtained a sign value of 0.000, so that the sig. value of 0.000 is below 0.05, indicating that training has a real impact on teacher certification. These findings explain that the more kindergartens that hold training for early childhood education teachers, the higher the chance of getting teacher certification for early childhood education teachers who teach at Kindergartens in Tallo District, Makassar.

From the results of the correlation analysis, the R value was obtained as 0.688, which means that there is a strong relationship between pedagogical competence and training in educator certification. Then the coefficient of determination value was obtained from the adjusted Rsquare value of 0.463, which means that educator certification in this study was influenced by pedagogical competence and training by 46.3%, while 53.7% was influenced by other variables not included in this research model.

2) The influence of pedagogical competence, training and certification of educators on the performance of early childhood education teachers (Model 2)

a) The influence of pedagogical competence on the performance of early childhood education teachers in Kindergartens in Tallo District, Makassar

The results of the path test analysis on the influence of pedagogical competence obtained a beta value (β) of 0.206, which indicates that pedagogical competence has an impact on the

performance of early childhood education teachers. Then from the partial findings (t-test) a sign value of 0.021 was obtained, because the sig. value of 0.021 < 0.05, indicating that pedagogical competence has a real impact on improving teacher performance. Simply put, the higher the teacher's pedagogical competence in understanding the characteristics of children, the higher the performance of early childhood education teachers at TK Tallo District Makassar.

b) The influence of training on the performance of early childhood education teachers at Kindergartens in Tallo District, Makassar

Path testing in this study obtained a beta value (β) for the training variable of 0.209, this explains that training has a real impact on the performance of early childhood education teachers. The results of hypothesis testing through partial testing (t-test) obtained a sign value of 0.024, so that the sign value of 0.024 is below 0.05, indicating that training has a real impact on improving teacher performance. Or it can be stated that the more early childhood education teachers who often participate in training will increase the performance of early childhood education teachers at TK Tallo District Makassar.

c) The influence of certification on the performance of early childhood education teachers in Kindergartens in Tallo District, Makassar

Based on the results of the path test regarding educator certification in this study, the beta value (β) for the educator certification variable was obtained at 0.471, this data explains that educator certification has a positive effect on the performance of early childhood education teachers. Then from the results of the hypothesis testing through partial testing, a sign value of 0.000 was obtained. A sign value of 0.000 below 0.05 indicates that certification has a real impact on improving teacher performance. Or it can be stated that the more teachers get certification, the higher the performance of early childhood education teachers in TK, Tallo District, Makassar.

Furthermore, to determine the correlation between variables, the R value = 0.784 was obtained, which indicates that there is a strong relationship between pedagogical competence, training and certification with the performance of early childhood education teachers in TK, Tallo District, Makassar. Meanwhile, seen from the determination coefficient value, it can be seen from the Adjusted Rsquare value of 0.603, meaning that the percentage ability of the influence of variations in the early childhood education teacher performance variable (dependent variable) can be explained by the independent variables, namely: pedagogical competence, training, and certification of 60.3%, while 39.7% is influenced by variables that are not included in this research model.

Next, we will explain the magnitude of the indirect impact of each independent variable (pedagogical competence, training and certification) on the performance of early childhood education teachers at the Tallo District Kindergarten in Makassar, which can be described as follows:

1) The influence of pedagogical competence on teacher performance through certification

The magnitude of the indirect impact of pedagogical competence on teacher performance through certification is shown in the following table:

Table 2. Indirect Impact of Pedagogical Competence on Early Childhood Education Teacher Performance through Certification

Track test	Standardized direct effect	pvalue	Standardized indirect effect	pvalue	Total standardized effect
X $\rightarrow$ Z 0.317 x 0.471	0.206	0.021	0.149	0.005	,0.355

Source: SPSS data processing results, 2024

According to the results of the indirect impact calculations, to determine the indirect impact of certification in mediating the impact of pedagogical competence on the performance of early childhood education teachers, a Sobel test can be carried out. online *as* shown in table 3:

Table 3. Findings of *the Sobel* Certification Test in Mediating the Impact of Pedagogical Competence on Early Childhood Education Teacher Performance

The screenshot shows a Sobel test calculator interface. At the top, a path diagram illustrates the relationship between three variables: 'independent variable' (X), 'mediator variable' (M), and 'dependent variable' (Y). Arrows indicate the paths: X to M (labeled A), M to Y (labeled B), and a direct path from X to Y (labeled C). Below the diagram, input fields are provided for the path coefficients and their standard errors: A: 0.390, B: 0.283, SE_A: 0.120, and SE_B: 0.051. A 'Calculate!' button is present. Below the button, the results are displayed: Sobel test statistic: 2.80440179, One-tailed probability: 0.00252050, and Two-tailed probability: 0.0050410.

Source: *Sobel test calculator results, 2024*

Table 3 is the result of *the Sobel test* of the impact of pedagogical competence on the performance of early childhood education teachers, namely the findings of the Sobel test of the impact of pedagogical competence on the performance of early childhood education teachers through certification at the Tallo District Kindergarten, Makassar, where the Sobel statistical test produced a value of 2.804 and a value *p* of 0.002. Because the *Sobel statistical test value* of 2.804 exceeds 1.96 and the *p* value of 0.002 is below 0.05, this study provides evidence that certification can act as a mediator in the impact of pedagogical competence on teacher performance. This means that the higher the pedagogical competence possessed by each teacher, the higher the opportunity to obtain teacher certification, so that this has a direct impact on improving the performance of early childhood education teachers at the Tallo District Kindergarten, Makassar will increase.

2) The influence of training on teacher performance through certification

The magnitude of the indirect impact of training on teacher performance through certification is shown in table 4.

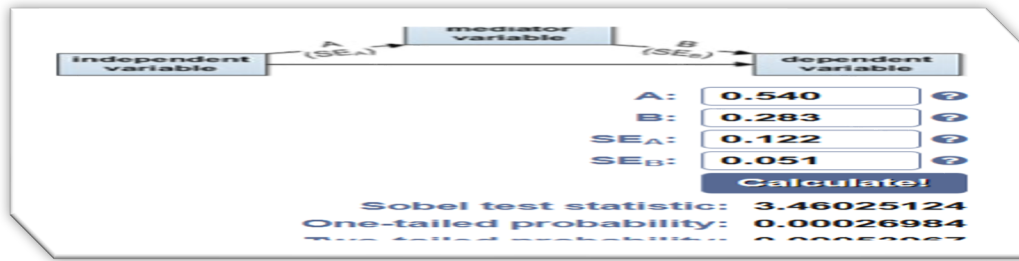
Table 4. Indirect Impact of Training on Early Childhood Education Teacher Performance through Certification

Track test	Standardized direct effect	pvalue	Standardized indirect effect	pvalue	Total standardized effect
X ₂ → Z 0.431x 0.471	0.209	0.024	0.203	0.0005	0.412

Source: *SPSS data processing results, 2024*

According to the results of the indirect impact calculations, to find out the indirect impact of certification in mediating the impact of training on the performance of early childhood education teachers, a test can be carried out . *sobel* online which *is* shown in table 5.

Table 5. Test Findings *Sobel* Certification in mediating the influence of training on Early Childhood Education Teacher Performance



Source: Sobel test calculator results, 2024

Test findings *sobel* the influence of training on the performance of early childhood education teachers through certification at Kindergartens in Tallo District, Makassar, where the statistical *sobel test value* is 3.460 and the pvalue is 0.000. The statistical value of *the sobel test* $3.460 > 1.96$ and pthe value $0.002 < 0.05$ provide evidence that certification can act as a mediator in the relationship between training and the performance of early childhood education teachers. This means that the level of training completed by early childhood education teachers directly affects the certification they will receive as early childhood education teachers so that this has a direct impact on improving teacher performance at TK in Tallo District, Makassar.

Discussion

1) The influence of pedagogical competence on the certification of early childhood education teachers at the Tallo District Kindergarten, Makassar

Hypothesis testing 1 that " pedagogical competence has a real impact on teacher certification in Kindergartens in Tallo District, Makassar" can be accepted. This is in line with the results of the research that has been carried out where the findings were obtained that pedagogical competence has a beta coefficient value (β) of 0.317 with a significance level of $0.002 < 0.05$, which means that pedagogical competence has a real impact on teacher certification. This data explains that the higher the pedagogical competence that early childhood education teachers have, the easier it will be to understand and follow the teacher certification process.

Teacher pedagogical competence plays an important role in improving teacher certification , as expressed by Normawati *et al.*, (2019:4) that pedagogical competence refers to the teacher's ability to monitor and direct student learning effectively . Certified teachers can improve the quality and effectiveness of teaching in the classroom. Teachers have the ability to provide a positive influence that can improve the quality of education for students . This can be seen from the research of Tamrin *et al.*, (2023) that teacher competence affects the graduation of teacher certification. Then the research of Zulfahmi *et al.*, (2022) which shows that competence has been proven to have an impact on the graduation of teacher certification. Teachers need interpersonal, professional, and educational skills. Certification is given to teachers who are able to produce competent students.

2) The influence of training on certification of early childhood education teachers in kindergartens

Tallo District, Makassar

Hypothesis testing 2 that "training has a real impact on teacher certification at Kindergarten in Tallo District, Makassar" can be accepted. As the results of the research that has been carried out, the beta coefficient (β) for training is 0.431, besides that it has a sig. level of $0.000 < 0.05$, so it means that training has a positive and significant impact on teacher certification. This data explains that teachers who often attend training or workshops will increase the success rate of certification for early childhood education teachers at Kindergarten in Tallo District, Makassar .

Training is an effort made by schools to provide competence by increasing knowledge and skills for teachers so that they can get certification, as stated by Anam *et al.*, (2023) that training provides opportunities for teachers to develop new skills and abilities in teaching, helps teachers understand the actions needed and offers opportunities to improve their skills, expertise, and opportunities for teachers to channel strong individual desires to the organization through teacher certification. Zulfahmi *et al.*, (2022), and Tamrin *et al.*, (2023) found that training had a significant impact on the pass rate of teacher certification. Where teachers who often attend training sessions tend to have a higher pass rate in certification exams.

3) The influence of pedagogical competence on the performance of early childhood education teachers at Kindergartens in Tallo District, Makassar

Hypothesis testing 3 that "pedagogical competence has a real impact on the performance of early childhood education teachers in TK, Tallo District, Makassar" can be accepted. This is in line with the results of the research that has been carried out where the beta coefficient (β) for pedagogical competence was obtained at 0.206, in addition to having a significance level of $0.021 < 0.05$, which indicates that pedagogical competence has a real impact on teacher performance. These data explain that good mastery of pedagogical competence by early childhood education teachers will improve the performance of early childhood education teachers in TK, Tallo District, Makassar.

Pedagogical competence should be possessed by every teacher in order to achieve learning success, as expressed by Firdaus *et al.*, (2022), that pedagogical competence requires teachers to effectively supervise student learning. This involves understanding students, preparing and implementing learning plans, evaluating learning outcomes, and encouraging student development in order to realize their individual competencies. Teachers with extraordinary pedagogical competence increase their effectiveness in carrying out the teaching process, leading to efficient and interactive learning that is in line with school goals. Research conducted by Wahyuningsih and Retnaningtyas (2021), Sitinjak *et al.*, (2022) that pedagogical competence has a real impact on teacher performance. The higher the teacher's competence through the level of teacher mastery, the more it will affect the improvement of teacher performance.

4) The influence of training on the performance of early childhood education teachers at the Tallo District Kindergarten, Makassar

Hypothesis testing 4 that "training has a real impact on the performance of early childhood education teachers at Kindergartens in Tallo District, Makassar" can be accepted. This is proven by the findings of the research conducted where research findings were obtained for training with a beta coefficient value (β) of 0.209, with a significance level of $0.024 < 0.05$, because the significance value is less than the standard value, it can be said that training has a real impact on teacher performance. Where the higher the mastery of the materials obtained through the training attended, the higher the performance of early childhood education teachers at Tallo District, Makassar Kindergarten.

Regular training is very important for teachers to improve teaching performance and improve the quality of education. According to Gala *et al.*, (2017) teachers can effectively improve their teaching performance by actively participating in training programs that focus on improving their skills and knowledge. The purpose of training is to improve and foster attitudes, behaviors, and skills that are in line with organizational goals. Research by Risdiantoro (2021) and Munggaran and Elmi (2020) proves that training has an impact on teacher performance, which means that training has the potential to improve knowledge and skills that have a direct impact on teacher performance.

5) The influence of teacher certification on the performance of early childhood education teachers in kindergartens

Children of Tallo District, Makassar

Hypothesis testing 5 that "Certification has a real impact on teacher certification at Kindergartens in Tallo District, Makassar" can be accepted. This is proven by the results of the research that has been carried out where the beta coefficient (β) for certification was 0.471, in addition to having a sig. level of $0.000 < 0.05$. So it can be stated that certification has a real impact on teacher performance. This data explains that the high recognition of teacher certification will improve the quality of their professionalism and improve teacher performance at Kindergarten in Tallo District, Makassar .

Teacher certification is a method used in the field of education to improve the quality and professionalism of educators. Therefore, every educator is required to have a teacher certificate as a license or proof of their teaching qualifications. Obtaining certification will benefit teachers by increasing their understanding and expertise in the responsibilities and roles of teaching as a profession, increasing their mastery of the curriculum and teaching methods, and changing their perception of teaching as a professional job. The certification program is useful for improving the quality of the learning process and outcomes for teachers while improving the performance and standards of education at the national level . Research by Lakapung *et al.*, (2023) , Suheri *et al.*, (2021) and Ristianey *et al.*, (2021) which states that teacher certification has an impact on teacher performance. Certification is an effort to improve sustainable professionalism, especially improving learning performance with activities such as self-development, scientific publications, and creating innovative works .

6) The influence of pedagogical competence on the performance of early childhood education teachers in Kindergartens

Children of Tallo District, Makassar through teacher certification

Hypothesis testing 6 that " Pedagogical competence has a real impact on the performance of early childhood education teachers through teacher certification at Kindergartens in Tallo District, Makassar" can be accepted. This is proven by the results of research that has been carried out through the results of the Sobel test where the statistical *Sobel test* value is 2.804 with a significance value = 0.002. Therefore, the statistical *Sobel test value of* $2.804 > 1.96$ and p the value of $0.002 < 0.05$ indicates that certification can mediate the influence of pedagogical competence on the performance of early childhood education teachers at TK in Tallo District, Makassar. This means that the higher the pedagogical competence that teachers have, the higher the opportunity to obtain teacher certification, so that this has a direct impact on improving the performance of early childhood education teachers at Kindergartens in Tallo District, Makassar will increase.

Obtaining teacher certification is the right action to increase motivation , competence, and effectiveness as stated by Alfath and Huliatusnisa (2021) that certification will be the main source of motivation for teachers, as well as increase their professional competence . Improving the welfare of instructors who have met the eligibility requirements and demonstrated academic competence will effectively improve the expected performance . Therefore, professional teacher allowances are specifically given to educators who have a teacher professional certificate obtained through a certification program . Zulfahmi *et al.*, (2022) proved that competence has a significant impact on teacher certification and teacher performance. To ensure competence in their fields, teachers must obtain certification in four main areas: pedagogical competence, personality competence, social competence, and professional competence , which means that the increase in teacher performance achievements as educators increases along with the increase in their level of competence .

7) The influence of training on the performance of early childhood education teachers at Kindergartens in Tallo District, Makassar through teacher certification.

Hypothesis testing 7 that "Training has a real impact on the performance of early childhood education teachers through teacher certification at Kindergartens in Tallo District, Makassar" can be accepted. This is proven by the results of research that has been carried out through the results of the Sobel test where the statistical *Sobel test* value is 3.460 and p the value is 0.000. Therefore, the

statistical *Sobel test value* of $3.460 > 1.96$ and *p*the value of $0.002 < 0.05$ indicates that certification can mediate the impact of training on the performance of early childhood education teachers. This means that training that is often attended by early childhood education teachers will have an influence on the certification that will be obtained by early childhood education teachers so that this has a direct impact on improving teacher performance at Kindergartens in Tallo District, Makassar.

The problem of teacher certification can improve teacher competence, motivation, work enthusiasm, and welfare. This has an impact on improving the quality of education and student academic achievement, as stated by Baroroh (2018) that teacher performance is influenced by a number of factors, namely training and certification. The purpose of training is to improve the theoretical, conceptual, technical, and moral skills of teachers so that they can produce the best possible work results. Improving teacher performance can be achieved through efficient job training. Meanwhile, certification refers to the process of granting certificates to educators who have passed the competency test carried out by the certification institution. Higher teacher certification will have an impact on increasing teacher performance. Research by Zulfahmi *et al.*, (2022) proves that training has a significant impact on passing teacher certification, Therefore, the frequency of teacher participation in training is directly correlated with the increase in their certification pass rate. Teacher involvement in training is an important element of a portfolio that outlines teacher achievements in supporting their graduation to obtain certification.

5. Conclusion

a. Conclusion

Pedagogical competence towards teacher certification, it was found that pedagogical competence has a real impact on teacher certification, which means that the high pedagogical competence that teachers have will have an impact on teacher certification. Then training towards teacher certification, research findings show that training has a real impact on teacher certification, where the possibility of obtaining teacher certification increases along with the frequency of training undertaken by early childhood education teachers.

Then from the results of the analysis conducted on competency towards teacher performance, the research findings that competency has a real impact on teacher performance, which means that a teacher performs better if they are more competent. Training on teacher performance, it can be stated that training has a real impact on teacher performance, which means that with frequent training for early childhood education teachers, it will increase teacher performance. Likewise, certification with teacher performance, the research findings are that certification has a real impact on teacher performance, where the level of teacher certification is directly correlated with the teacher's ability to improve their performance in mastering the learning process at TK Tallo District Makassar.

The findings of the Sobel test on the impact of competence on teacher performance through certification, obtained research findings that certification can mediate the influence of competence on teacher performance. Then the influence of training on teacher performance through certification, obtained research findings that Certification can act as a mediator in the influence of training on teacher performance. This means that the level of training completed by early childhood education teachers will affect the certification that will be obtained by early childhood education teachers so that this has a direct impact on improving teacher performance at the Tallo District Kindergarten, Makassar.

b. Suggestions

It is suggested that every teacher needs to master learning theory and principles of the learning process, by mastering Active Learning (AL), Collaborative Learning (CL) and Contextual Teaching Learning (CTL). In addition, by paying attention to the principles of the learning process by increasing motivation, involvement, cooperation or reasoning capacity. (power reasoning) students. It is better

for the organizers of training in schools to provide training process facilities, namely by providing a projector complete with a layer so that the training program can be implemented properly.

The training materials should be adjusted to be in line with the current educational curriculum so that teachers have the provisions and motivation to master the learning process in schools. It is also recommended that teachers who receive teacher certification can be more motivated to have high teacher competence by mastering the four competencies, namely personality competence, pedagogical competence, social competence, and professional competence. To further improve the performance of early childhood education teachers, the organizers of Kindergarten schools must accept teachers who are experienced in teaching, considering that the participants to be taught are early childhood children, so that with teaching experience can support the success of the learning process in schools.

Thank-you note

Researchers express their praise and gratitude to the presence of Allah SWT. Thanks to His grace and guidance, the researcher managed to complete this thesis on time. This achievement cannot be separated from the support of various parties, especially the supervising lecturers and examiners who have provided invaluable guidance in perfecting this thesis, and the early childhood education teachers who participated in filling out the questionnaire.

BIBLIOGRAPHY

- Achmadi, D., Suryadi, Sari, E., & Karnati, N. (2023). *Improving Teacher Performance*. Indramayu: Adab Publisher.
- Alfath, MD, & Huliatusna, Y. (2021). Analysis of Certification Policy on Teacher Performance. *Indonesian Journal of Elementary Education*, 2 (1), 78–91.
- Alim, MS (2022). *Boosting Teacher Competence (Analysis of Determinant Factors Influencing Teacher Competence)*. Tangerang: Pascal Books.
- Anam, C., Winarko, R., & Budiarto, W. (2023). The Influence of Competence and Training on Teacher Performance at the State Islamic Senior High School (MAN) Sampang with Work Discipline as an Intervening Variable. *Journal of Management and Creative Business (JMCBUS)*, 1 (4), 119–139.
- Arribathi, AH (2023). Teacher Certification. In *Book Chapter: Ethics & Teaching Profession*. Banten: Sada Kurnia Pustaka.
- Artha, AY (2022). *Elementary School Teacher Training Management in Improving Professional Competence*. Tangerang: Pascal Books.
- Aslam, Nurdin, D., & Suharto, N. (2023). *Professional Learning Community: Strategy to Improve Teacher Performance*. Bandung: Indonesia Emas Group.
- Azan, K. (2021). Basic Concepts of Human Resource Management. In *Book Chapter: Human Resource Management; Theoretical and Practical Studies in Education*. Riau: Dotplus Publisher.
- Azis, A. (2020). *The Concept of Teacher Performance and Learning Resources in Achieving Achievement*. Bogor: Guepedia Publisher.
- Baroroh, LD (2018). The Influence of Job Training and Teacher Certification on Teacher Performance at SMP Negeri 1 Kalisat Jember. *Journal of Muhammadiyah University of Jember*, 1–10.
- Budiyanto, E., & Mochklas, M. (2020). *Employee Performance Reviewed from the Aspects of Leadership Style, Organizational Culture and Work Motivation (Research Approach)*. Banten: CV. AA. Rizky.
- Caterine, W., Budiana, N., & Indrowaty, SA (2019). *Professional Ethics of Millennial Generation Education 4.0*. Malang: UB Press.

- Divha, M. (2022). *Teacher: The Fighter of the Republic of Indonesia* . Yogyakarta: Samudra Biru.
- Duli, N. (2019). *Quantitative Research Methodology (Some Basic Concepts for Writing Thesis & Data Analysis with SPSS)* . Yogyakarta: Deepublish.
- Erniati. (2020). *Evaluation of Islamic Religious Education Teacher Performance* . Malang: CV. Pustaka Learning Center.
- Fakhrudin, AU (2019). *Becoming a Preschool Teacher* . Jakarta: Elex Media Komputindo.
- Faozan, A. (2022). *Improving the Performance of Islamic Religious Education Teachers through Academic Supervision, Training and Participation in Teacher Working Groups* . Serang: A-Empat Publisher.
- Firdaus, Muazza, Rosmiati, & Astuti, D. (2022). The Influence of Principal Academic Supervision and Teacher Pedagogical Competence on the Performance of Junior High School Teachers. *Edukatif: Journal of Educational Sciences* , 4 (2), 1793–1803.
- Franky, & Savira, R. (2021). The Influence of Teacher Certification and Competency Programs on Teacher Performance. *Kelola: Scientific Journal of Management* , 7 (1), 9–16.
- Gala, IN, Ramadhan, HA, & Rede, A. (2017). The Influence of Training and Work Motivation on the Teaching Performance of Science Teachers in Junior High Schools in Poso City. *E-Journal Mitra Sains* , 5 (2), 58–66.
- Ghodang, H. (2020). *Path Analysis: Concept & Practice in Research* . Medan: PT. Publisher Mitra Group.
- Hafidulloh, Iradawaty, SN, & Mochklas, M. (2021). *Teacher Management: Improving Teacher Discipline and Performance* . Yogyakarta: Bintang Pustaka Madani.
- Herman, NR, Syafria, & Buyung. (2023). *Strategic Management and Quality of Islamic Education* . Sidoarjo: Uwais Inspiration Indonesia.
- Ichsan, RN, Nasution, L., & Sinaga, S. (2021). *Human Resource Management (HRM) Teaching Materials* . Medan: CV. Sentosa Deli Mandiri.
- Indonesia. (2005). *Law Number 14 of 2005 Concerning Teachers and Lecturers* .
- Indrawan, I. (2020). *Becoming a Professional Integrated DMIJ Plus Early Childhood Education Teacher* . Riau: Dotplus Publisher.
- Jamaliah, M., & Cahyaningsih, U. (2020). The Influence of Teacher Certification on Student Learning Achievement. *National Seminar on Education FKIP UNMA* , 2 , 434–440.
- Lakapung, HA, Goru, R., Perseveranda, ME, & Kaluge, AH (2023). The Impact of Teacher Certification, Supervisory Supervision, and School Culture on Teacher Performance (A Review of Educational Management Literature Studies). *Journal of Information Systems Management Economics* , 4 (5), 808–816.
- Latif, ZM, Ridwan, & Totanan, C. (2017). The Influence of Professional and Pedagogical Competence on Accounting Teacher Performance at State Islamic Senior High Schools in Palu City. *E-Journal Catalog* , 5 (3), 67–77.
- Human Resource Management . Padang: Get Press .
- Masrum. (2021). *Professional Teacher Performance* . Purbalingga: CV. Eureka Media Aksara.
- Maswanto, Sulaeman, S., Prayitno, I., & Ahmad, AG (2022). *Human Resource Management* . Jakarta: UM Jakarta Press Publisher.
- Munggaran, MGA, & Elmi, F. (2020). The Influence of Training, Discipline and Certification on Teacher Performance at the Nur El Falah Kubang Islamic Education Foundation. *SWOT Journal* , 10 (1), 1–13.
- Nasution, WSL, Hardhienata, S., & Retnowati, R. (2022). *Tips for Success in Becoming a Professional Teacher* . Purbalingga: CV. Eureka Media Aksara.
- Nisa, HAK (2019). The Influence of Teacher Certificates on Elementary School Teacher Performance.

Journal of Elementary School Teacher Education Research , 7 (7), 3741–3750.

- Normawati, S., Anwar, S., & Indramaya, S. (2019). *Ethics and the Teaching Profession* . Riau: PT. Indragiri Dot Com.
- Octavia, SA (2021). *Teacher Professionalism in Understanding Student Development* . Yogyakarta: Deepublish.
- Prasodjo, T. (2021). *Human Resource Training and Development* . Yogyakarta: Zahir Publishing.
- Pratama, A. (2022). *Human Resource Management (For Government from Theory to Practice)* . Bandung: Widina Bhakti Persada.
- Purbasari, VA, Samidi, R., Sari, EN, Habibi, RK, & Setiawan, R. (2020). *21st Century Citizenship Education Learning Framework* . Yogyakarta: UNY Press.
- Putra, R., Nyoto, Suyono, & Wulandari, E. (2019). The Influence of Motivation, Training, Organizational Culture, and Organizational Commitment on Teacher Job Satisfaction and Performance at State Vocational High Schools in Pekanbaru City. *Procuratio: Scientific Journal of Management* , 7 (3), 328–343.
- Rachmawati, DW, Ghozali, MI Al, Nasution, B., & Firmansyah, H. (2021). *Pedagogical Theory and Concept* . Cirebon: Insania Publisher.
- Risdiantoro, R. (2021). The Influence of Teacher Training on Teacher Performance Through Professional Development of Elementary Madrasah Teachers in Batu City. *Khidmatuna: Journal of Research and Community Service* , 1 (2), 144–157.
- Ristianey, F., Harapan, E., & Destiniar. (2021). The Influence of Certification and Work Motivation on Teacher Performance. *Journal of Management, Leadership, and Educational Supervision* , 6 (1), 34–43.
- Rustandi. (2023). Understanding Human Resource Training and Development. In *Book Chapter Training Management* . Sukoharjo: Pradina Pustaka.
- Sa'adah, L. (2021). *Inferential Statistics* . Jombang: LPPM KH. A. Wahab Hasbullah University.
- Salfiyadi, T. (2021). *Optimizing UKS Teacher Performance* . Serang: A-Empat Publisher.
- Samnur. (2023). *Continuous Professional Development for Productive Teachers in Vocational Schools* . Bandung: Indonesia Emas Group.
- Simatupang, S. (2022). Training and Development. In *Book Chapter: Human Resource Management* . Padang: PT. Global Executive Technology.
- Sinar. (2021). *The Role of Supervisors in the Global Era New Breakthroughs to Improve Teacher Professionalism* . Yogyakarta: Deepublish.
- Sitinjak, N., Dahlan, JA, & Tatminingsih, S. (2022). The Influence of Pedagogical Competence and Professional Competence on the Performance of Elementary School Teachers in Sagulung District. *Journal of Dedication to Education* , 6 (1), 157–168.
- Sopamena, P., & Kaliky, S. (2020). *Teacher Competency Map and Education Quality in Maluku* . Ambon: LP2M IAIN Ambon.
- Subyantoro, A., Mardiana, T., & Hasan, ZM (2022). *Human Resource Training and Development* . Yogyakarta: Zahir Publishing.
- Sudirman, A. (2020). Quantitative Research. In *Book Chapter: Multidisciplinary Approach Research Methodology* . Gorontalo: Ideas Publishing.
- Sugiyanti, E. (2022). *Individual Meeting Techniques in Improving Teacher Competence in Determining Minimum Completion Criteria (KKM)* . Central Lombok: P4I Publisher.
- Sugiyono. (2019). *Quantitative Research Methods* . Bandung: Alfabeta.
- Suheri, Suja'I, AYI, & Sunaryo, H. (2021). The effect of teacher certification and implementation of the MGMP program on teacher motivation and performance. *Journal of Educational Management Accountability* , 9 (2), 189–202.

- Sulila, H., Badu, SQ, Djafri, N., & Lamatenggo, N. (2023). *Education and Training of Teacher Managerial Competencies* . Yogyakarta: Tanah Air Beta Publisher.
- Supiani. (2022). *Teacher Performance Monograph: Improvement Through Principal Supervision and Work Motivation* . Riau: Dotplus Publisher.
- Supriyatno, A., Subiyanto, & Tawil. (2016). The Influence of Educator Certification, Teacher Competence and Principal Leadership on High School Teacher Performance. *Journal of Educator Profession* , 3 (2), 171–181.
- Susilowati, Sodikin, M., & Purnomo, Y. (2023). *Human Resource Management* . Yogyakarta: Deepublish.
- Sutrisno, E. (2020). *Human Resource Management* . Jakarta: Prenadamedia.
- Tahir, AM, Mailoa, J., Aman, A., Jusuf, EC, & Mappaware, NA (2022). *Textbook of Education and Training* . Makassar: Unhas Press.
- Tamrin, Miarti, & Supardi. (2023). The Role of Teacher Training and Competence on Teacher Certification Pass Rates. *Management Studies and Entrepreneurship Journal* , 4 (2), 1229–1230.
- Tedi, S. (2022). Competence. In *Educational Management* . Padang: Get Press.
- Wahyuningsih, R., & Retnaningtyas. (2021). The Influence of Pedagogical Competence and Professional Competence of Teachers on Teacher Performance at MAN 3 Jombang. *Cahaya Mandalika Journal* , 2 (2), 95–102.
- Warami, H. (2022). *Teaching Profession: One Achievement, One Devotion and One Pride, Learning Series in Frontier, Outermost and Disadvantaged Regions (3T)* . Yogyakarta: Absolute Media.
- Waryani. (2021). *Dynamics of Teacher Performance and Learning Styles (Concept and Implementation on Learning Achievement)* . Indramayu: Adab Publisher.
- Wijaya, C., Suhardi, & Amiruddin. (2023). *Teacher Competency Development Management* . Medan: Umsu Press.
- Yohamintin. (2023). *Textbook of Teacher Professional Ethics* . Bandung: Indonesia Emas Group.
- Yusup, M. (2022). Instrument Test. In *Book Chapter: Various Research Data Analysis (Literature, Research and Development)* . Madura: IAIN Madura Press.
- Zulfahmi, Marantika, A., & Zulher. (2022). The Influence of Competence and Training on the Pass Rate of Teacher Certification and Its Impact on Teacher Performance at Public High Schools in Bangkinang City. *Jesya (Journal of Economics & Sharia Economics)* , 5 (1), 854–872.