

Relationship Teaching Experience and Educator Certificates against Pedagogical Competencies

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Abstract

The territory of Indonesia is dominated by vast oceans. Therefore, Indonesian citizens should be equipped with a deep understanding about sea currents and sea pollution. This study aims to identify the conceptions held by pre-service primary school teachers about both sea currents and sea pollutant migration. The study also aims to identify whether pre-service primary school teachers see a relationship occurring between those conceptions. The study involved 147 pre-service primary school teachers from one of Indonesia's teacher training institutions. Four-tier diagnostic tests were used to gather data about the conceptions of pre-service primary teachers. The data were interpreted and analyzed in a descriptive quantitative method. The results showed that pre-service primary school teachers' conceptions about sea currents and sea pollutant migration were mostly in the category of 'misconception' and 'have no conception'. The correlation test about the ability of pre-service primary school teachers to explain the concepts of sea currents and sea pollutant migration was also not significant. The results of this study indicate a need to improve the quality of teaching and learning for pre-service primary school teachers about convection by linking it to sea currents and sea pollutant migration.

Keywords

Educator certificates, pedagogical competence, teaching experience

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Introduction

Teacher experience is crucial in educational institutions. The teacher must understand the ins and outs associated with schooling. The level or level of education possessed by the teacher is not the main guarantee of success, teaching but a decisive experience (Muhammad & Yamin, 2006). Experienced teachers can be seen from their sensitivity to problems, ability to solve problems, choosing the right method in the learning process, formulating learning goals, motivating students, managing students, and getting feedback in the learning process. In other words, this teacher is a teacher who has good performance. In accordance with the mandate of the constitution number 20 year 2003, the government is concerned about the quality of teacher performance. At the real level is the teacher certification program. This is also the government's effort to standardize teacher performance. Teachers who do not meet the standards will receive training, training, and certification from the government for free at no charge at all. Islamic Religious Education Teachers are one of the intended government policy targets, so that with teaching experience and certification, Islamic religious education is expected to improve the quality of Islamic religious education learning at all levels of education, primary and secondary.

Certification is a process to obtain an educator certificate which is given to lecturers and teachers. The provision of educator certificates for teachers is based on the requirements that must be met in realizing a system and improving the quality of education. A certificate that has been signed by the administrator of a university, is official proof of a teacher's professionalism in improving education. Implementation of teacher certification based on law no. 14 of 2005 concerning Teachers and Lecturers which was ratified on December 30, 2005. What is declared valid is Article 1 (11) which states that the provision of educator certificates is for lecturers and teachers. As for certification, described in Article 1 paragraph (7) defines certification as the process of granting teacher certificates to teachers. The importance of teacher certification is based on Article 8 of law no 14 of 2005 concerning teachers and lecturers which in his explanation that teachers must have the abilities that meet the requirements as academics, are competent, have educator certificates, be physically and mentally healthy, and have the ability to realize goals in teaching and learning, learn how to teach. National Education. This implicitly implies a must for a teacher. This requirement is an effort to improve the quality of education. In an effort to improve the quality of education, teachers are a very important factor. The demand for quality education is very high, so a good response from the teachers is needed. Especially now that the development of science very rapidly in various sectors of life, is necessary to manage educational resources, both human resources, financial resources, a source of power facilities and infrastructure and resources of the methodology and educational procedures (man, money, material, method) optimally.

The condition of educators or teachers, especially at senior high schools in Indonesia, especially those with public status, is interesting to study and study because recently there have been many policies concerning high school teachers. All high school teachers must meet educational qualifications, in addition to meeting competency requirements (education, personality, professional, and social education). A teacher's competence determines success in achieving quality improvement in learning, especially pedagogical competence. To be a successful teacher, teachers must go through the experience of transformation in carrying out teaching, preparation and expertise in organization, not giving up easily and with quality, carrying out character development activities, mentoring and self-development to improve professionalism (Kumi-Yeboah & James, 2012).

The experience of teaching can also affect the quality of education. The intended teaching experience is the period of work as a teacher. Working period is related to work experience, what is meant is the length of time someone works in an education unit. The longer a person works, the more experienced they are, in the sense of being able to know more about various aspects of their work, so that they are expected to be more productive or have better performance than those who have relatively short work experience. Teaching experience is not only gained during teaching in the current place, but can be supplemented with experience gained from other schools. Studies on teaching experience find that the average teacher who has teaching experience experiences an increase in effectiveness early in their careers quickly (Boyd et al., 2011; Harris & Sass, 2011; Papay & Kraft, 2015; Jonah E. Rockoff, 2004; Wiswall, 2013). (Ewetan, Ewetan, & Education, 2015), another interesting source of teacher welfare is the number of years of teaching experience.

A qualified teacher must have one of the competencies, one of which is pedagogic competence. Pedagogic competence is the ability of teachers to manage student learning, starting from understanding students, planning and implementing learning, evaluating learning outcomes, and developing students in expressing the positive potential of students. In this case the researcher wants to know how the teacher certification program that produces teachers who are certified educators carried out by the government in overcoming the problems faced by teachers in Indonesia in particular the performance of teachers after education and teacher certification training. In addition, researchers also want to know how the holding of education with conduct teacher certification to improve the quality of learning through training activities that is perfect for teaching staff who will ultimately be able to bring progress to education in Indonesia. In the context of islamic religious education teachers in Tulungagung, islamic religious education teachers in state senior high schools in Tulugagung are an important part of government policy for improvement in the quality of education in Indonesia.

Based on the background above, it is important to conduct research to prove scientifically whether teachers who have teaching experience and have been certified educators are able to improve their competencies, especially pedagogical competencies. Interest research is determine the effect of teaching experience to competence pedagogic, teaching certificate on the competence of pedagogic, as well as jointly influence the experience of teaching and teaching certificate to the pedagogical competence of teachers of Islamic religious education of state senior high school in Tulungagung Regency.

Method

Population and Sampling

This study uses a research approach that is measured using statistics (quantitative). The approach used in this study is an associative approach, namely research that aims to determine the effect of two or more variables. The analysis technique in this study uses statistical analysis using multiple regression. This study took a population of all islamic religious education teachers in state senior high schools throughout Tulungagung Regency. Collecting data using total sampling, then that all study populations were research samples totaling 10 people.

Variables

There are two variables tested in this study, namely the independent and dependent variables. The independent variables in this study are teaching experience (X1) and educator certificates (X2). Indicators of teaching experience include; student understanding, learning design, learning implementation, designing and evaluating learning outcomes, and student development. Educator certificate indicators include; teacher academic qualifications, teacher competence, mental and physical health, and the ability to achieve the goals of national education. The dependent variable in this study is pedagogic competency (Y). Indicators of pedagogical competency variables include; 1) physical, moral, socio-cultural and intellectual knowledge, 2) knowledge related to learning theory and good learning principles, 3) able to develop curriculum in teaching expertise, 4) organize educational learning activities, 5) facilitate students in carrying out actualization to increase the potential development of students, and 6) carrying out activities and the results of the process through evaluation and assessment.

Data analysis

Data analysis in this study used the reliability and validity test, then multiple regression tests were performed using SPSS version 17 software.

Findings And Discussion

Findings

Results descriptive statistics on the responses of respondents from each variable, both regarding teaching experience and educator certification to the pedagogical competence of islamic religious education teachers are shown in Table 1.

Table 1.
Descriptive analysis

	n	range	min	max	The mean		Standard deviation
					average	Standard error	
teaching experience	22	37	22	59	47.32	1.695	7.949
educator certificate	22	4	1	5	2.36	0.339	1.590
pedagogical competence	22	27	26	53	41.41	1.372	6.434

Table 1 shows the results of the descriptive analysis of the teacher's experience, the largest score of 59 and the smallest of 22 with a range value of 37. While the average score of 47.32 and the standard deviation value of 7.949. The calculation results from the descriptive analysis of the teacher's experience obtained a value of 5 and the smallest value of 1 with a range of 4. While the average score was 2.36 with a standard deviation of 1.59. The results of the calculation of the descriptive analysis of the teacher's experience obtained a value of 53 and the smallest value of 26 so that the range was 27. While the average score was 41.41 with a standard deviation of 6.434. Descriptive analysis results that have been analyzed, then proceed with the validity test on the indicator. The results of the validity of the teaching experience instrument and the teacher's certificate of learning achievement are shown in Table 2 and Table 3.

Table 2.
Validity test scores on each teaching experience test item

Item	Corrected item-total correlation	Criteria
test 1	0.554	Valid
test 2	0.616	Valid
test 3	0.834	Valid
test 4	0.599	Valid
test 5	0.678	Valid
test 6	0.597	Valid
test 7	0.677	Valid
test 8	0.603	Valid
test 9	0.656	Valid
test 10	0.675	Valid
test 11	0.556	Valid
test 12	0.580	Valid

Table 2 shows that 12 items of teaching experience of islamic religious education teachers were in the range of 0.554 - 0.834 and the value of item-total correlation > pearson correlation value of 5% significance was 0.514. Thus, these questions can be said to be valid.

Table 3.
Test results of the validity of pedagogical competency items

Item	Corrected Item-Total Correlation	Criteria
test 1	0.553	Valid
test 2	0.550	Valid
test 3	0.738	Valid
test 4	0.625	Valid
test 5	0.669	Valid
test 6	0.602	Valid
test 7	0.711	Valid
test 8	0.537	Valid
test 9	0.583	Valid
test 10	0.529	Valid

Table 3 shows that 10 items of pedagogical competence were in the range of 0.550 to 0.738 and the value of item-total correlation > pearson correlation value of 5% significance was 0.514. Thus, these questions can be said to be valid. The test value of the reliability test on the variable about teaching experience and pedagogical competence in Table 4 and 5.

Table 4.

The test value of the reliability analysis of teaching experience items

cronbach's alpha	n	criteria
0.691	12	reliable

Table 4 shows that the reliability statistic value, the cronbach's alpha value of 0.691 > the significance value of 0.60. this shows that the items on the instrument are reliable or feasible. Table 5 shows that the reliability statistic value, the cronbach's alpha value of 0.687 > the significance value of 0.60, so that the items in this instrument are reliable or feasible.

Table 5.

Results of reliability analysis items on pedagogical competence

cronbach's alpha	n	criteria
0.687	10	Reliable

The results of normality tests on teaching variables are shown in Table 6, while the results of normality tests on pedagogical competency variables are shown in Table 7.

Table 6.

Test value for normality of teaching experience

		Unstandardized Residual
N		22
Normal Parameters ^{a, b}	The mean	0.000
	Standard Deviation	6.312
	Absolute	0.124
Most Extreme Differences	Positive	0.123
	Negative	-0.124
Kolmogorov-Smirnov Z		0.580
Asymp. Sig. (2-tailed)		0.890

Table 6 shows the value of the normality test with a significance value of the teaching experience variable of 0.890 which shows the normality value of the teaching experience is greater than 0.05. Means that the teaching experience data is normally distributed.

Table 7.

The value of the normality test of pedagogic competence

		Unstandardized Residual
N		22
Normal Parameters ^{a, b}	The mean	0.000
	Standard Deviation	6.429
	Absolute	0.99
Most Extreme Differences	Positive	0.99
	Negative	-0.097
Kolmogorov-Smirnov Z		0.463
Asymp. Sig. (2-tailed)		0.983

Table 7 shows the value of the normality test of pedagogic competence variables of 0.983 which shows the normality value of pedagogical competencies greater than 0.05. It means that pedagogical competency data is normally distributed. Before testing the hypothesis first a

correlation analysis is obtained from the regression output. The results of the terminated coefficient test are shown in Table 8.

Table 8.

Results of the coefficient of determination

Model	R	R-square	Adjusted R-square	Standard error
1	0.195 ^a	0.038	-0.063	6.634

a. Predictors: (Constant), educator certificates, teaching experience

b. Dependent Variable: pedagogical competence

The results of the multiple correlation analysis can be seen in the summary model output from the results of the multiple linear regression analysis above. Based on the output, the R value is 0.195. It can be concluded that 19.5% had a fairly strong relationship between teaching experience and educator certificates with teacher pedagogical competence. While the remaining 80.5% is influenced by variables from outside the study. To calculate the magnitude of the influence of teaching experience and educator certificates on the pedagogical competence of Islamic high school religious education teachers in Tulungagung Regency by using the R Square. The R Square figure is also called the coefficient of determination. The magnitude of the coefficient of determination in the calculation above is equal to 0.038 or equal to 3.8%. This figure means that the magnitude of the influence of teaching experience and educator certificates on pedagogical competence of Islamic religious education teachers in state senior high schools in Tulungagung Regency is 3.8 %, while the remaining 96.2% must be explained by other causal factors come from outside regression. The results of the multiple regression analysis of teaching experience variables and educator certificates for pedagogical competence are shown in Table 9.

Table 9.

Test results on multiple regression analysis of X1 and X2 to Y

Model	Unstandardized Coefficients		Standardized Coefficients	t	sig.
	B	Standard error	Beta		
(Constant)	33.824	8.854		3.820	0.001
1 teaching experience (X1)	0.155	0.183	0.192	0.850	0.406
educator certificate (X2)	0.102	0.913	0.25	0.111	0.913

Table 9 shows that the first null (H_0) hypothesis test was accepted. The first hypothesis testing is done by comparing the results of t_{count} with t_{table} . From the table Coefficients above obtained value of $t_{count} = 0.850$. Meanwhile, for t_{table} with a significance level of 0.05, the value of $t_{table} = 2.074$. Comparison between the two results: $t_{count} < t_{table}$ ($0.850 < 2.074$). The significance value of t for the teaching experience variable is 0.406 and the value is greater than the probability of 0.05 ($0.406 > 0.05$). Thus, in this test indicates that the H_0 rejected and H_a accepted. This means that there is no significant influence between teaching experience on the pedagogical competence of Islamic religious education teachers in state senior high schools in Tulungagung Regency.

The second null (H_0) hypothesis test results are accepted. Based on Table 9, for testing the second hypothesis using the t test. The second hypothesis testing is done by comparing the results of t_{count} with t_{table} . From the table Coefficients above obtained value of $t_{count} = 0.111$. Meanwhile, for t_{table} with a significance level of 0.05, the value of $t_{table} = 2.074$. Comparison between the two results: $t_{count} < t_{table}$ ($0.111 < 2.074$). The significance value of t for the Certificate of Educator variable is 0.913 and the value is greater than the probability of 0.05 ($0.913 > 0.05$). Thus, in this test indicates that the H_0 rejected and H_a accepted. This means that there is no influence of educator certificates on pedagogical competence in state senior high schools in Tulungagung Regency. Based on the results of the regression analysis in Table 9, the regression equation results can be obtained as follows:

Pedagogical competence of Islamic religious education teachers
 $(Y) = 33.824 + (0.155)X1 + (0.01)X2$

The standard error of the regression equation in Table 9 is 8.854 for beta = 0, the teaching experience variable is 0.183 and the educator certificate variable is 0.913. Teaching experience variable has a significance value of t is 0.406 and educator certificate variable is 0.913. So it can be concluded that teaching experience and educator certificates partially have no effect on the pedagogic competence of Islamic religious education teachers, the significance value of all variables is greater than the set probability value of 0.05. The test results from the calculation of multiple regression analysis in Table 9 show that teaching experience and educator certificates partially have no effect on the pedagogic competence of Islamic religious education teachers in public high schools throughout Tulungagung Regency. From the regression equation (1) it can be interpreted as follows:

1) Constant value = 33,824. This shows if the value of teaching experience (X1), educator certificate (X2) in the research object is equal to zero, then the magnitude of the pedagogical competence of Islamic religious education teachers (Y) is 33,824.

2) Coefficient value $b_1 = (0.155)$. This shows if the value of teaching experience (X1) has increased by one point while the certificate of educator (X2) remains, the pedagogical competence of Islamic religious education teachers increases by 0.155

3) The coefficient value $b_2 = (0.102)$. This shows that if the value of the Educator Certificate (X2) increases by one point while the teaching experience (X1) remains, the pedagogical competence of Islamic religious education teachers increases by 0.102.

The F-test results in Table 10 show the influence of teaching experience and educator certificates on the pedagogical competence of Islamic religious education teachers in state senior high schools in Tulungagung Regency by using a comparison of F_{count} and F_{table} with a significance level of 5% and N_{22} , obtained by F_{table} is 3,124 using a 95% confidence level, and $\alpha = 5\%$. The results obtained from the F in Table 10.

Table 10.

Test results f of X1 and X2 against Y

Model		Sum of squares	df	Mean square f	sig.
1	Regression	33.196	2	16.598	0.377 0.691 ^b
	Residual	836.122	19	44.006	
	Total	869.318	21		

a. Dependent Variable: pedagogical competence

b. Predictors: (Constant), educator certificates, teaching experience

Table 10 shows that the calculated F test results are 0.377. This shows that $F_{\text{count}} (0.377) < F_{\text{table}} (3.520)$ and the significance value of the F test is obtained by a value of 0.691, thus the significance obtained is greater than the specified probability ($0.691 > 0.05$). So that we get a conclusion that there is no relationship between the influence of teaching experience and educator certificates on pedagogic competence.

Discussion

Novice teachers who had less teaching experience early in their careers were less effective than those with more experience (Clotfelter, Ladd, & Vigdor, 2007; Jonah E Rockoff, Jacob, Kane, Staiger, & Policy, 2011; Wayne & Youngs, 2003) and on average each teacher gain effective profits quickly during the first few years of work (Jonah E. Rockoff, 2004). It is still not clear how many teachers continue to want career advancement in the future (Harris & Sass, 2011; Wiswall, 2013). Experts hypothesize that the return of this teaching experience is capital gained by humans which includes elements of electronic media knowledge, how to manage classrooms, and how to transfer knowledge for learning. Teachers learn to make preparations in planning and making improvements to teaching materials (Kaufmann, Johnson, Kardos, Liu, & Peske, 2002) to be able to fulfill fairness in learning in different students (Johnson & Birkeland, 2003).

(Kane, Rockoff, & Staiger, 2008), non-certified teachers can improve time efficiency faster than friends who already have certificates. Preliminary evidence on urban teacher residency programs suggests that program graduates perform less well than novice teachers. But improved quickly after a few years in class and was able to surpass his peers (Papay & Krafft, 2015). (Loeb, Kalogrides,

Béteille, & Policy, 2012) documented how, on average, teachers progress faster in school by getting better and higher grades. (Sass, Hannaway, Xu, Figlio, & Li, 2012). found that among teachers who teach in schools with a small number of students will experience a rapid increase in learning.

Teachers are a very important part of a system in education. The role, duties and responsibilities of a teacher are very important factors in realizing the goals of education, namely: educating the nation's life, improving human quality, including belief, glory, and understanding of science, technology, and art, realizing a prosperous, and prosperous Indonesian society. civilized. Teacher certification is one of the efforts made by the government in improving the quality of educators which is positively correlated with improving teacher welfare (Sudja & Yuesti, 2017). The positive impact of certification, payments to teachers can be used as a driver for increasing student learning as suggested by the theory of efficiency wages and increasing teacher retention (Hendricks, 2014). (Kusumawardhani, 2017) found that there was no strong relationship between the effectiveness of certified teachers and student learning outcomes and teacher performance based on student and teacher test scores, teacher attendance, and teacher participation in activities outside of teaching.

The self-development of future teacher pedagogical competencies can be defined as the conscious activity of students from pedagogical universities, directed at mastery of one's own psychological initiatives and their own pedagogical knowledge, improve professional skills, pedagogical abilities, and significantly improve professional quality (Gebre, Saroyan, & Bracewell, 2014). The rule related to student orientation towards the development of pedagogic competence is to reduce student activity which is part of pedagogic management (Felder & Silverman, 1988). Pedagogical management is used to encourage and support useful student activities, discuss together with them to find out their needs, support useful initiatives in developing independence and creativity in the educational environment (Oskolkova, Ozegova, & Kruze, 2012). Therefore, pedagogical activities must be built so that the style changes from teacher teaching activities (planning, assigning assignments, estimating) to educational activities based on student initiative and creativity. This is possible only if it is possible for individual interests and student needs, providing students with an independent vector of pedagogical competency development (Cowan, 2012). Teaching experience has a curvilinear relationship with overall pedagogical competence (Lauermaann & König, 2016).

Conclusion

The conclusions from the results of this study are: 1) there is no relationship between teaching experience and pedagogic competence, 2) there is no relationship between educator certificates and pedagogic competence, 3) there is no relationship between teaching experience and educator certificates on the pedagogical competence of islamic religious education teachers in state senior high schools in Tulungagung Regency.

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