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Revisiting pedagogical skills: A comprehensive analysis of Mathematics teaching competencies among elementary educators

Salamah
Universitas PGRI Yogyakarta, Indonesia
*Corresponding Author: salamah@upy.ac.id

ABSTRACT

This research aims to explore the intricate relationships between attitudes towards the teaching profession, teaching experience, self-concept, and teaching competencies among elementary school teachers. The study's sample comprises 40 first-grade teachers from elementary schools in Yogyakarta, selected through a multistage cluster random sampling technique. The findings of this research indicate several key correlations: (1) a positive correlation exists between attitudes towards the teaching profession and teaching competencies; (2) teaching experience positively correlates with teaching competencies; (3) self-concept also shows a positive correlation with teaching competencies. Moreover, the study reveals that attitudes towards the teaching profession, teaching experience, and self-concept collectively contribute to a significant positive correlation with teaching competencies. These results highlight the multifaceted nature of teaching proficiency and underscore the importance of fostering positive attitudes, accumulating teaching experience, and developing a strong self-concept to enhance educational outcomes in elementary education.

Keywords: teaching competencies, teacher proficiency, teacher attitudes

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INTRODUCTION

Over the past five years, the development of education in general and primary education in particular has shown quantitatively and qualitatively progress. The overall improvement in the quality of the education system requires systemic efforts in terms of the preparation, guidance, and competency development of many teachers, school principals, and supervisors to ensure the implementation of high-quality educational programs in schools. This will enable them to effectively fulfill their roles in delivering and developing relevant and responsive teaching processes that meet the changing needs of individuals and society.

At present, it cannot be denied that advancements in science and technology are continuously progressing. One factor that has not been carefully considered is the rapid pace of life changes compared to the education provided. According to Engkoswara (2019), this situation would be better if the current approach is perfected by emphasizing education as the primary force for long-term future development in the dimensions of life. This aligns with the views of Gagne & Driscoll (2019), who emphasize the importance of essential learning conditions in instructional design.

Improving and equalizing the quality of primary education is a major concern of the government because primary education serves as a crucial foundation for the subsequent levels of schooling. The quality and presence of primary education are essential considerations as part of the human resource development strategy.

In correspondence to enhancing human resources, education holds a highly strategic position. The quality and quantity of available education will determine the availability of human resources. Quality human resources can only emerge from quality education. The government

consistently strives to improve the quality of education through various renewal programs. The development of mathematics and student-centered teaching approaches at all levels of education is a tangible example of renewal efforts aimed at improving the quality of education.

At present, it cannot be denied that advancements in science and technology are continuously progressing. One factor that has not been carefully considered is the rapid pace of life changes compared to the education provided. According to Engkoswara (2019), this situation would be better if the current approach is perfected by emphasizing education as the primary force for long-term future development in the dimensions of life. This requires a lot of innovation in the field of educational technology. The concern for educational technology in the teaching process, as stated by Miarso (2019), is its ability to perform the functions of education development, including design, evaluation, selection, utilization, dissemination, and the functions of educational management, including organizational and personnel management, to the fullest extent possible.

This issue has prompted the government through the Ministry of National Education to strive to improve the quality of education, starting from the primary level. These efforts simultaneously address the community's demands, which tend not only to seek quality education but also demand it. The quality improvement of education in elementary schools can be achieved through various efforts. These efforts include enhancing the quality and professionalism of teachers through continuous education and training to meet the teacher competency standards.

The quality of teaching and learning activities in elementary schools is determined by the teaching ability of teachers. As educators, teachers must continuously pay attention to the basic aspects of teaching and learning activities. Teaching and learning activities should be interactive and have pedagogical aspects. Therefore, the issue of teachers' teaching ability needs attention.

Teachers have a crucial role in teaching and learning activities in elementary schools. Experienced teachers or those teaching for a long time have accumulated a wealth of knowledge through their experiences in planning and implementing instruction. As a result, with extensive teaching experience, they tend to have high teaching abilities.

Teachers' ability to teach mathematics undoubtedly impacts the quality of mathematics teaching and learning activities. This aligns with the opinion of James & Dahl (2020) that a teacher's mastery of the subject matter greatly influences the quality of teaching. Issues related to the teacher component in teaching mathematics, when thoroughly analyzed, are closely related to the functions of management and the development of instruction in improving the quality and role of teachers in making teaching and learning activities effective. Additionally, they can contribute to strategic thinking in anticipating mathematics teaching activities in elementary schools in relation to the curriculum, institutional structure, and educational management.

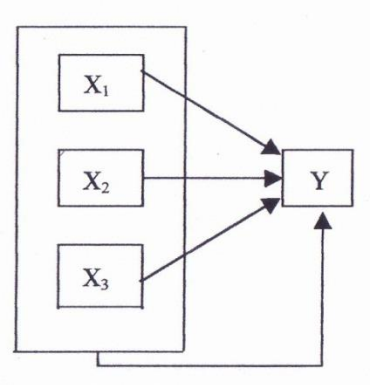
The current study aims to address a crucial issue in the field of teachers' ability to teach mathematics, particularly at the elementary school level. Therefore, the research questions can be formulated as follows: Is there a relationship between attitudes towards the teaching profession and the mathematics teaching ability of elementary school teachers? Is there a relationship between teaching experience and the mathematics teaching ability of elementary school teachers? Is there a relationship between self-concept and the mathematics teaching ability of elementary school teachers? Is there a relationship between attitudes towards the teaching profession, teaching experience, and self-concept with the mathematics teaching ability of elementary school teachers?

METHOD

This research aims to determine the relationship between the attitude towards the teaching profession, teaching experience, self-concept, and the teaching ability of elementary school mathematics teachers, both individually and collectively. The method used was a survey with a correlational technique. The constellation of the problem can be described as follows in Figure 1. The study was conducted in elementary schools in Kota Yogyakarta. The sampling was done using a multistage cluster random sampling technique, selecting 7 out of 14 districts as the

research locations. From these 7 districts, 40 elementary schools were randomly selected, resulting in a total sample size of 40 respondents, who were the teachers teaching in grade I.

There were also four different instruments used in this study. The researcher developed the instruments for the variables of teaching ability of elementary school mathematics teachers, attitude towards the teaching profession, and self-concept. The instrument for the variable of teaching experience consisted of factual data about the number of years of teaching as a teacher (Figure 1).



Explanation:
X1 : Attitude towards the Teaching Profession
X2 : Teaching Experience
X3 : Self-Concept
Y : Teaching Ability of Elementary School Mathematics Teachers

Figure 1. Constellation of the Problem

The instrument for the teaching ability variable of elementary school mathematics teachers was developed as observation sheets used by three observers to assess teachers' performance during the mathematics teaching process in grade I. An analysis of each statement and its descriptors was conducted to obtain good items from the pilot study. The observation sheet consisted of 29 statements accompanied by descriptors as assessment references for the observers, and it was tested on 30 teachers in Yogyakarta teaching in grade I. The reliability coefficient for the teaching ability instrument was found to be 0.87. In addition to finding the reliability coefficient for individual instrument items, the reliability coefficient for ratings was also calculated, resulting in a value of 0.93. The instrument for attitude towards the teaching profession consisted of 48 statement items with a reliability coefficient of 0.91.

Data obtained from the teaching experience variable were factual data. In this study, the instrument was simply a personal identity sheet containing the number of years of teaching. The self-concept instrument used in this study consisted of 40 statement items with a reliability coefficient of 0.89.

Statistical analysis was used to test the research hypotheses. Data analysis techniques included the analysis prerequisites, which involved testing data normality and data homogeneity. The normality test of the data used Lilliefors's Lilliefors (Sudjana, 2019). Data were considered normal if the Lo value was less than Lt at a significance level of $\alpha = 0.01$. Data homogeneity was tested using the Bartlett test (Sudjana, 2019). Data were considered homogeneous if $\chi^2_{count} < \chi^2_{table}$ with a significance level of $\alpha = 0.01$.

Linear data linearity and the significance of regression were tested using ANOVA tables (Sudjana, 2019). Linear regression was considered highly significant if the F-value was less than the F-table value at a significance level of $\alpha = 0.01$.

To answer the research hypotheses, correlation and regression analysis techniques were used. The first, second, and third hypotheses used simple regression and correlation. The correlation formula used was Pearson's product-moment correlation and was tested using the t-test. The fourth hypothesis was analyzed using multiple regression and correlation through an F-test.

FINDINGS AND DISCUSSION

Findings

Analysis prerequisites

The testing of normality for the regression residual error of the dependent variable Y against the independent variables was conducted using the Lilliefors method, and the results confirmed that normality was met. The homogeneity test was performed using the Bartlett test, and it was satisfied, where $\chi^2_{count} < \chi^2_{table}$. Therefore, the variance groups of Y over X_1, Y over X_2, and Y over X_3 were homogeneous.

Hypothesis testing

The first hypothesis states a positive relationship exists between attitude towards the teaching profession (X_1) and the teaching ability of elementary school mathematics teachers (Y).

Based on the calculation results, a relationship between X_1 and Y was obtained, as indicated by the regression equation $\hat{y} = 51.11 + 0.31X_1$. The results of significance and linearity testing for the regression equation is in Table 1.

Table 1. List of ANOVA for linear regression $\hat{y} = 51.11 + 0.31X_1$

Source of Variance	df	SSR	MSR	F_{count}	F_{table} α = 0,05 0,01
Total	40	438180	438180	-	
Reg (a)	1	435974,4	435974,4		4,1
Reg (b|a)	1	1615,78	1615,78	104,096**	7,35
Residual	38	589,82	15,52		
Tune-up	30	557,15	18,57	4,548**	3,08
Error	8	52,67	4,08		5,2

Description: **: Regression is highly significant; *: Regression is linear; df: Degrees of freedom; SSR: Sum of squares regression; MSR: Mean sum of squares

Based on the significance test of the regression and the linearity test (Table 1), it can be said that the relationship between the pair of data, attitude towards the teaching profession (X1), and mathematics teaching ability (Y) is highly significant and linear.

Regression equation: $\hat{Y} = 51.11 + 0.31X_1$, indicating that for every one-point increase in the attitude score towards the teaching profession, there is a corresponding increase of 0.31 points in mathematics teaching ability at the constant value of 51.11. The strength of the relationship between X_1 and Y is indicated by the correlation coefficient rY_1, which is 0.86. The regression equation's graph is shown in the following Figure 2.

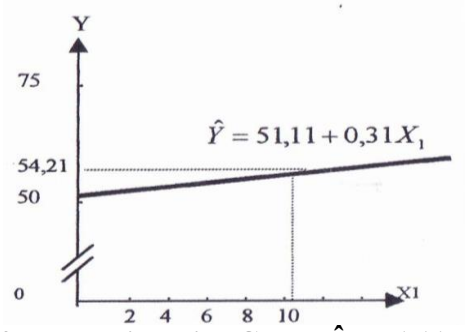


Figure 2. Regression Line Graph $\hat{Y} = 51.11 + 0.31X_1$

The significance and importance test of the correlation coefficient is listed in the Table 2. Based on the significance test of the correlation coefficient (Figure 2), it can be concluded that the correlation coefficient between attitude towards the teaching profession (X_1) and the ability to teach mathematics (Y) at 0.86 is highly significant. The coefficient of determination is r_{Y12} =

$(0,8587)^2$ = 0,7374 or 73.74%, which means that 73.74% of the variance in the ability to teach mathematics (Y) can be explained by the variable attitude towards the teaching profession (X_1).

Table 2. Significance test of the correlation coefficient between attitude towards the teaching profession and mathematics teaching ability

The Correlation Coefficient r_{Y1}	t_{count}	t_{table} α = 0,05	t_{table} α = 0,01
0,86	10,329**	1,1684	2,428

Description: **: The correlation coefficient is highly significant (t_{count} = 10.329 > 2.428 = t_{table})

The partial correlation coefficient between attitude toward the teaching profession (X_1) and the ability to teach mathematics (Y) is rY1.2 = 0.7030 when the influence of the variable teaching experience (X_2) is controlled. This is the condition under which the correlation coefficient is calculated. This analysis is then followed by a "t" test to determine the significance of the relationship between X1 and Y. The calculated t-value is 6.013.

If the influence of the variable self-concept (X_2) is controlled, the partial correlation coefficient between attitude towards the teaching profession (X_1) and the ability to teach mathematics (Y) is $r_{Y1\ 3}$ = 0.6365. This analysis is then followed by a "t" test to determine the significance of the relationship between X_1 and Y. The calculated t-value is 5.020.

When the influence of variables X_2 and X_3 is controlled, the partial correlation coefficient between X_1 and Y is $r_{Y1.23}$ = 0.639. This analysis is then followed by a "t" test to determine the significance of the relationship between X_1 and Y. The calculated t-value is 4.986. The summary of the significance test of the partial correlation coefficient is shown in Table 3.

Table 3. The summary of the significance test of the partial correlation coefficient

Correlation Coefficient (Partial)	n	df	t_{value}	t_{table} α = 0,05	t_{table} α = 0.01
r_{Y12} = 0,7030	40	37	6,013**	1,686	2,432
r_{Y13} = 0,6365	40	37	5,020**	1,686	2,432
r_{Y123} = 0,639	40	36	4,986**	1,688	2,432

Description: **: highly significant

Table 3 shows that the partial correlation coefficient between attitude towards the teaching profession and the ability to teach mathematics, when controlling for teaching experience and self-concept, is highly significant. The results of this simple relationship analysis conclude that there is a highly significant positive relationship between attitude towards the teaching profession and the ability to teach mathematics.

Testing the first hypothesis provides information that the ability to teach mathematics is significantly influenced by the attitude towards the teaching profession, with a contribution of 73.74%. This means that a more positive attitude towards the teaching profession can enhance one's ability to teach mathematics.

The second hypothesis states a positive relationship exists between teaching experience (X_2) and the ability to teach mathematics (Y).

The relationship between X_2 and Y is represented by the regression equation $\hat{Y} = 80.64 + 1.09X_2$. The ANOVA table summarizing the significance testing and linearity of the relationship is shown in Table 4.

Based on the significance testing of regression and the linearity of the relationship, it can be said that the relationship between the pair of teaching experience data (X_2) and the ability to teach mathematics (Y) is highly significant and linear. The regression equation: $\hat{Y} = 80.64 + 1.09X_2$, indicates that there is an increase of 1.09 in the score of the ability to teach mathematics for every increase of one teaching experience score, with a constant of 80.64. The strength of the relationship between X_2 and Y is represented by the correlation coefficient r_{Y2}, which is 0.79. The graph of the regression equation can be seen in Figure 3.

Table 4. ANOVA table for linear regression $\hat{Y} = 80.64 + 1.09X_2$

Source of Variance	df	SSR	MSR	F_{value}	F_{table} α = 0,05 0,01
Total	40	438180	438180	-	
Reg (a)	1	435974,4	435974,4		
Reg (b | a)	1	1383,21	1383,21	63,913**	4,10 735
Residual	38	822,39	21,64		
Tune-up	15	364,26	24,28	1,219**	2,12
Error	23	458,13	19,92		2,93

Description: **: Regression is highly significant; *: Regression is linear; df: Degrees of freedom; SSR: Sum of squares regression; MSR: Mean sum of squares

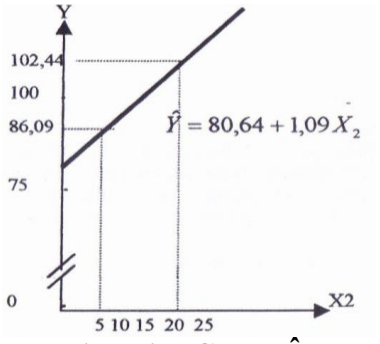


Figure 3. Regression Line Graph $\hat{Y} = 80,64 + 1,09X_2$

To determine the significance of the correlation coefficient, hypothesis testing using the "t-test" was conducted. The summary of the significance test of the correlation coefficient is shown in Table 5.

Table 5. Significance test of the correlation coefficient between teaching experience and mathematics teaching ability

Correlation Coefficient r_{Y2}	t_{value}	t_{table} α = 0,05	t_{table} α = 0,01
0,79	8.018**	1,684	2,428

Description: **: The correlation coefficient is highly significant (t_{value} = 8,018 > 2,428 = t_{table})

Based on the significance test of the correlation coefficient (Table 5), it can be stated that the correlation coefficient between teaching experience (X_2) and the ability to teach mathematics (Y) of 0.79 is highly significant. The coefficient of determination is $r_{Y22} = (0.7928)^2 = 0.6285$ or 62.85%. This means that 62.85% of the variance in teaching mathematics ability (Y) can be explained by teaching experience (X_2).

After accounting for other independent variables, such as attitude towards the teaching profession (X_1), the partial correlation coefficient between teaching experience (X_2) and the ability to teach mathematics (Y) is $r_{Y2.1} = 0.534$. The analysis proceeds with a "t" test to ascertain the significance of the correlation between teaching experience (X_2) and the ability to teach mathematics (Y), resulting in a calculated t-value of 3.838. the partial correlation coefficient between X_2 and Y, afteraccounting for the variable self-concept (X_3), is $r_{Y23} = 0.362$. An analysis is continued with a "t" test to determine the significance of the relationship between X_2 and Y, resulting in a calculated t-value of 2.364. When controlling for two independent variables, X_1 and X_3, the partial correlation coefficient between teaching experience (X_2) and the ability to teach mathematics (Y) is $r_{Y213} = 0.369$. An analysis is continued with a "t" test to determine the significance of the relationship between X_2 and Y, resulting in a calculated t-value of 2.381. A summary of the test results is provided in Table 6.

Table 6. Summary of partial correlation coefficient significance tests

Partial Correlation Coefficient	n	df	t_{value}	t_{table} $\alpha = 0,05$	t_{table} $\alpha = 0,01$
$r_{Y2\,1}$ = 0,534	40	37	3,838**	1,686	2,432
$r_{Y2\,3}$ = 0,362	40	37	2,364*	1,686	2,432
$r_{Y2\,13}$ = 0,369	40	36	2,381*	1,688	2,432

Description: **: highly significant; *: significant

According to the information provided in Table 6, the partial correlation coefficient between teaching experience and the ability to teach mathematics, while considering attitude towards the teaching profession, is highly significant and should not be disregarded. When controlling for self-concept, it is still significant and cannot be ignored. These results remain significant when controlling for both X_1 and X_3. The analysis of this simple relationship concludes that there is a significant positive relationship between teaching experience and the ability to teach mathematics.

This result provides information that the ability to teach mathematics is strongly influenced by teaching experience, with a contribution of 62.85%. The amount of teaching experience can determine the ability to teach mathematics.

The third hypothesis states a positive relationship exists between self-concept and the ability to teach mathematics. The relationship between self-concept (X_3) and the ability to teach mathematics (Y) is shown by the regression equation: $\hat{Y} = 41.67 + 0.41X_3$. The summary of significance testing and linearity of the relationship is presented in Table 7.

Table 7. List of ANOVA for linear regression

Source of Variance	df	SSR	MSR	F_{value}	F_{table} α = 0,05 0,01
Total	40	438180	438180	-	
Reg (a)	1	435974,4	435974,4	69,078**	4,1
Reg (b | a)	1	1422,86	1422,86		7,35
Residual	38	782,74	20,6		
Tune-up	24	644,74	26,86	2,725*	2,35
Error	14	138	9,86		3,43

Description: **: Regression is highly significant; *: Regression is linear; df: Degrees of freedom; SSR: Sum of squares regression; MSR: Mean sum of squares

Based on the significance test of regression and the linearity of the relationship, it can be concluded that the correlation between the pair of self-concept data (X_3) and the ability to teach mathematics (Y) is both highly significant and linear. The regression equation $\hat{Y} = 41.67 + 0.41X_3$ indicates that each increase of one point in the self-concept score leads to an increase of 0.41 points in the ability to teach mathematics, with a constant of 41.67. The strength of the relationship between X_3 and Y is represented by the correlation coefficient r_{Y3}, which is 0.80. The regression equation can be seen in Figure 4.

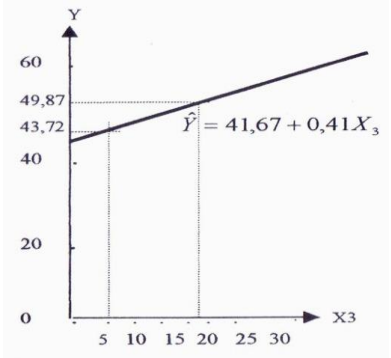


Figure 4. Regression Line Graph $\hat{Y}$ = 41,67 + 0,41X_3

To determine the significance of the correlation coefficient, a hypothesis test using the "t" test was conducted. The summary of the significance test for the correlation coefficient is presented in Table 8.

Table 8. Significance test of the correlation coefficient between self-concept and mathematics teaching ability

Correlation Coefficient r_{Y3}	t_{value}	t_{table} $\alpha = 0,05$	t_{table} $\alpha = 0,01$
0,8	8,182**	1,684	2,428

Description: **: The correlation coefficient is highly significant (t_{value} = 8,182 > 2,428 = t_{table})

The significance test of the correlation coefficient above indicates that the correlation coefficient between self-concept (X_3) and mathematics teaching ability (Y) of 0.80 is highly significant. The coefficient of determination is $r_{Y32} = (0.7987)^2 = 0.6379$, which means that 63.79% of the variance in mathematics teaching ability (Y) can be explained by self-concept (X_3).

When controlling for other predictor variables, such as attitude towards the teaching profession (X_1), a partial correlation coefficient of 0.4241 is found between self-concept (X_3) and mathematics teaching ability (Y, denoted as $r_{Y3.1}$ =. An analysis was then conducted using the "t" test to determine the significance of the relationship between X_3 and Y, resulting in a t-value of 2.849. When controlling for the variable of teaching experience (X_2), a partial correlation coefficient between X_3 and Y is obtained, which is $r_{Y3.2} = 0.3911$. An analysis was then conducted using the "t" test to determine the significance of the relationship between X_3 and Y, resulting in a t-value of 2.585. When controlling for both variables X_1 and X_2, a partial correlation coefficient between self-concept (X_3) and mathematics teaching ability (Y) is obtained, which is $r_{Y3.12}$ = 0.4104. An analysis was then conducted using the "t" test to determine the significance of the relationship between X_3 and Y, resulting in a t-value of 2.700. The summary of the test results in Table 9.

Table 9. Summary of the significance test of partial correlation coefficients

Partial Correlation Coefficient	N	df	t_{value}	t_{table} $\alpha = 0,05$	t_{table} $\alpha = 0,01$
$r_{Y3.1}$ = 0,4241	40	37	2,849 **	1,686	2,432
$r_{Y3.2}$ = 0,3911	40	37	2,585 **	1,686	2,432
$r_{Y3.12}$ = 0,4104	40	36	2,700 **	1,688	2,432

Description: **: highly significant

Based on Table 9, it can be inferred that the partial correlation coefficient between teaching ability in mathematics and self-concept, when controlling for attitude towards the teaching profession, is very significant. Similarly, when controlling for teaching experience, it remains relevant. The same holds when controlling for both variables; the results are still very significant. The analysis of this simple relationship concludes that there is a highly significant positive relationship between self-concept and the ability to teach mathematics. This result provides information that the ability to teach mathematics is greatly influenced by self-concept, contributing to 63.79%.

The fourth hypothesis posited that there is a positive relationship between attitude towards the teaching profession, teaching experience, self-concept, and the ability to teach mathematics to elementary school teachers.

A multiple linear regression analysis between attitude towards the teaching profession (X_1), teaching experience (X_2), and self-concept (X_3), together with the ability to teach mathematics (Y), is represented by the following multiple regression equation: $\hat{Y} = 52.62 + 0.21X_1 + 0.45X_2 + 0.05X_3$.

No test for the linearity of multiple regression was performed, assuming that if the three simple regression models are linear, the multiple regression model is also linear. A test for the normality of the regression residuals was performed using the Lilliefors method, resulting in a

value of Lo = 0.1270, while the critical value (Lt) at a significance level of 0.01 is 0.1630. Therefore, Lo = 0.1270 < 0.1630 = Lt. It can be said that the residuals in the multiple linear regression equation are normally distributed. Furthermore, a test for the significance of the multiple linear regression model was conducted using the F-statistic, as summarized in Table 10.

Table 10. ANOVA summary for multiple linear regression: $\hat{Y} = 52.62 + 0.21X_1 + 0.45X_2 + 0.05X_3$

Source of Variance	df	SSR	MSR	F_{hitung}	F_{tabel} α = 0,05 0,01
Total corrected	39	2205,6			
Residual	3	1339,13	613,04	60,22**	2,8
Regresion	36	366,47	10,18		4,38

Description: **: highly significant

Based on the significance test above, it means that the multiple regression equation: $\hat{Y} = 52.62 + 0.21X_1 + 0.45X_2 + 0.05X_3$, which is highly significant and linear. After testing the significance of multiple regression, the next step is to test the multiple correlations of variables X_1, X_2, and X_3 with variable Y. By using multiple correlation analysis, the calculation results in a multiple correlation coefficient $R_{Y.123}$ of 0.91 and the coefficient of determination $R^2_{Y.12} = (0.913)^2 = 0.8338$ or 83.38%. This indicates that the attitude towards the teaching profession (X_1), teaching experience (X_2), and self-concept (X_3) collectively account for 83.38% of the variability in the ability to teach mathematics (Y). Next, a test of the significance of the multiple correlation coefficient is conducted using an F-test. The calculated F-value is 60.152. A summary of the calculations is shown in Table 11.

Table 11. Summary of the significance test of the multiple correlation coefficient

Multiple Correlation Coefficient $R_{Y.123}$	F_{value}	F_{table} α = 0,05	α = 0,01
0,91	60,152**	2,8	4,38

Description: **: The correlation coefficient is very significant and meaningful

Therefore, the alternative hypothesis, which claims that the combination of attitude towards the teaching profession, teaching experience, and self-concept does not contribute positively to the teaching ability of elementary school mathematics teachers, is disproven. The testing provides information that the ability to teach mathematics is significantly influenced by attitude towards the teaching profession, teaching experience, and self-concept, with a contribution of 83.38%. This means that the positivity of one's attitude towards the teaching profession, the extent of teaching experience, and the positivity of self-concept can determine the ability to teach mathematics.

The ranking of the strength of the relationship between the three independent variables, attitude towards the teaching profession (X_1), teaching experience (X_2), and self-concept (X_3), with the dependent variable, namely the ability to teach mathematics (Y), can be seen Table 12.

Table 12. Ranking of partial correlation coefficients

Partial Correlation between	Partial Correlation Coefficient	Rank	Variable
X_1 with Y	$r_{Y1.23}$ = 0,639	First	Attitude
X_2 with Y	$r_{Y2.13}$ = 0,369	Second	Experience
X_3 with Y	$r_{Y3.12}$ = 0,410	Third	Self-concept

Table 12 shows that the highest partial correlation coefficient is the variable "sikap terhadap profesi guru", which translates to "attitude towards the teaching profession.

Discussion

Improving attitudes towards the teaching profession

Considering the significant contribution of the attitude towards the teaching profession compared to the other two variables, it is imperative that special attention should be given to nurturing this attitude. Cultivating one's attitude towards a profession can be achieved through interactions with others, such as fellow teachers and school principals, involvement in professional organizations, and other related activities (Heinz, 2015; Klassen & Tze, 2014). It is reasonable to anticipate that a teacher's ability to teach will also improve if their attitude towards their profession becomes more positive. For this reason, efforts should be made to ensure that teachers have a positive attitude towards their work. How a teacher views and behaves in their profession significantly affects their success in teaching (Stinnett, 2020; Richardson et al., 2013).

To cultivate a more positive attitude towards their profession, teachers should experience a sense of the value of their work in enhancing children's learning, derive pleasure from their tasks, and attain a state of contentment with their chosen profession (Fokkens-Bruinsma & Canrinus, 2014). They should also carefully consider their actions before carrying them out. Additionally, they should be open to receiving advice from colleagues and be willing to seek advice from their peers without considering their status. This aligns with the suggestions by Barber (2018) on effective communication strategies in the classroom. Furthermore, the use of instructional technology, as highlighted by Armsey & Dahl (2020), can also play a significant role in enhancing teaching effectiveness.

To cultivate a more positive attitude towards their profession, teachers should experience a sense of the value of their work in enhancing children's learning, derive pleasure from their tasks, and attain a state of contentment with their chosen profession (Fokkens-Bruinsma & Canrinus, 2014). They should also carefully consider their actions before carrying them out. Additionally, they should be open to receiving advice from colleagues and be willing to seek advice from their peers without considering their status. Furthermore, they should have varied concerns and high hopes for their students' success. These factors will affect the quality of teaching performed by teachers. Naturally, by adopting such attitudes, teachers will be more than willing to continue their education continuously to keep up with developments in their field of expertise and technology (Day, 2017).

School principals are expected to continue to encourage, guide, and motivate teachers in matters related to teaching and other school duties. Through these efforts, teachers are expected to have a positive attitude towards their work, be motivated, and always be passionate about carrying out their duties (Darling-Hammond, Hyler, & Gardner, 2017). In addition to fulfilling their duties in the classroom, teachers should also actively participate in professional organizations as a platform to gain knowledge and develop their professional skills. In an organization, teachers must uphold and adhere to the applicable code of ethics.

Apart from paying attention to experienced teachers, teacher education programs should also be considered. Fostering attitudes in prospective teachers is an initial step that needs to be instilled. As an institution tasked with producing elementary school teachers, the Elementary School Teacher Education Program must play a significant role in developing a positive attitude towards the teaching profession. Approaches that can be taken to teach a positive attitude towards the teaching profession include providing knowledge and skills to prospective teachers, sharing the teacher's profile, providing a conducive teaching environment, instilling a sense of admiration in prospective teachers for those with positive attitudes, and providing reinforcement every time prospective teachers display the desired attitude (Buchanan et al., 2013).

Improving teaching experience

To broaden their horizons, teachers should participate more actively in both in-class and extracurricular activities. This can be done in groups with fellow teachers with the aim of enhancing their teaching skills (Desimone & Garet, 2015). Efforts to improve the ability to teach mathematics can be supported by an increase in teaching experience. These efforts can be carried out through workshops and seminars, both in the field of mathematics teaching materials and in

education in general. According to Arends (2021), continuous professional development is crucial for maintaining and enhancing teaching skills.

The implementation of exchanges or internships at other schools should be tailored to effective learning time, school conditions, teacher domiciles, and the geographical location of schools. Through this program, it is hoped that teachers' abilities in conducting teaching and learning activities will be enhanced. Experience development should also begin when prospective teachers are in the Elementary School Teacher Education Program (PGSD). Prospective teachers should be given teaching practice in a relatively short period and more time to apply their knowledge in schools (Kennedy, 2016).

Self-concept improvement

The research findings suggest a positive relationship between the self-concept perception of elementary school mathematics teachers and their teaching proficiency. Self-concept perception contributes significantly, amounting to 63.79%, to the teaching ability of elementary school mathematics teachers. Therefore, it can be said that the presence of self-concept can enhance the teaching ability of elementary school mathematics teachers (Marsh & Martin, 2011).

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Many factors can contribute to the formation of a teacher's self-concept. In addition to the psychological aspects within themselves, various external factors also play a role, including their position, teacher career development, work environment, technical and procedural regulations governing teachers' operational tasks in teaching, and assessments or recognition of work achievements (Hattie, 2012). This means that there needs to be special attention given to external factors affecting teachers to form a reasonable self-concept to enhance the teaching ability of elementary school mathematics teachers. The significance of self-concept indicates that those involved in teacher development and quality improvement efforts should strive to ensure that each teacher is shielded from factors that could reduce their self-concept regarding their role and function as an elementary school teacher (Collie, Shapka, & Perry, 2012).

CONCLUSION

The teaching ability of 1st-grade elementary school teachers can be significantly improved when several key factors align. Firstly, maintaining a positive and enthusiastic attitude towards the teaching profession, as this outlook fosters a genuine passion in more positive ways. Morover, by nurturing a positive attitude towards teaching, they have more teaching experience, and their self-concept is also more positive.

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