

The Influence of Teachers' Professional Competence and Students' Learning Styles on The Learning Achievement of Students

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Abstract

The value of teacher professional competence is the basis for student learning success. The purpose of this study was to determine the effect of teacher professional competence and student learning styles on student achievement in grade 4 elementary school. This study uses a quantitative ex post facto approach. The research population used was in the Tembarak sub-district, Temanggung district, with a total of 130 people in 7 elementary schools. The technique used in this study was random sampling so that 98 people were obtained. The results of data analysis were seen through a regression test using SPSS. The results of the study show that the professional competence of teachers has a significant effect on student achievement. Learning styles of students affect the learning achievement of students. And the professional competence of teachers and students' learning styles jointly affect the learning achievements of participants. The implication of this research is that the value of teacher professionalism is not necessarily able to improve student achievement without seeing and analyzing student learning styles in the classroom. So, it is very important for the teacher to know the learning style of each student in the class.

Keywords: *Teacher Professional Competence; Learning Style; Learning Achievement; Student*

Introduction

Success in achieving the goals of law number 20 of 2003, academics are always making changes and developing the education system, as well as increasing the value of teacher professional competence, where certain programs are encouraged to improve these competencies (Yatimah et al., 2018). But until now problem after problem arises with various backgrounds (Solihin et al., 2022). Of course, this will have an impact on the quality of education in Indonesia, especially in Temanggung district. The quality of education is one of the references that can be seen through the learning achievements of students (Yatimah et al., 2019). It becomes a benchmark in one's achievement during the learning process. To increase the value of learning achievement and influenced by two factors, namely external and internal (Krisnawati et al., 2022). And to increase the value of these factors there are programs that need to be carried out by a teacher in the classroom (Fransiska, 2016). One factor is increasing the value of teacher professional competence (Sakti et al., 2019).

Professional teachers become one of the determinants of the teaching and learning process, especially in the aspect of mastery of the material (Krisnawati et al., 2022). Professional competence means that teachers must have extensive knowledge of the field of study to be taught and be able to have methods in the learning process (Tsabitah & Fitria, 2021). In addition, their capacity in planning lessons is obtained from systematic training on technical guidance

when attending pre-service education and education when they are already serving as a teacher (Sakti et al., 2019). Teachers must be able to plan learning programs and determine and control their abilities in carrying out learning.

However, based on the observations of 15 teachers, around 63% of the teachers had not been able to master it meaningfully in the learning process in class. This shows that these external values cannot work alone without other factors, namely factors that exist within the students themselves or what are called internal factors. One of the internal factors in students is one of the learning styles (Immah et al., 2020). Learning style itself is an effort made by students in the process of thinking to understand the information received. Learning styles are also a combination of various ways in which students absorb, organize and process information (Adawiyah et al., 2020).

The impact of this problem can be seen based on the results of observations of researchers seeing students when following the learning process of students with themselves and not being assertive about the explanations that are being given by the teacher besides that when the teacher gives feedback students are only plastic without responding to what is given to them (Yatimah et al., 2018). teacher this happens one of the reasons because students are less able to the material being explained and also because of the teacher's lack of understanding of the characteristics of students and learning styles (Karnadi et al., 2021).

The results of this observation are supported by Purwaningsih et al., (2020) research which states that the province's teacher traffic competence influences only a few percent in improving student learning achievement. Then Eva in her research stated that there was a significant influence between the value of teacher professionalism in classroom management skills on student achievement (Noervadila et al., 2020). Then in his research Istiqomah concluded that there was an effect of learning style on learning achievement with a contribution of 14%. This means that the learning styles and professional values of teachers and their skills in classroom management cannot be separated in improving student learning outcomes (Hafizha et al., 2022).

Based on the research that has been done, it can be seen that the value of teacher professional competence and student learning styles cannot be separated. There is a need for research to analyze the influence of teacher professional competence and student learning styles in improving learning achievement.

Method

This research is an ex-post facto research conducted in order to examine a phenomenon that has occurred, then analyze it in order to obtain information about the factors that trigger the occurrence of the event, so this study aims to analyze the variables that influence the learning achievement of the participants. educate. This research was conducted at Dwijabakti Cluster Elementary Schools, Tembarak District, Temanggung Regency. The implementation of this research was carried out from January to March 2022.

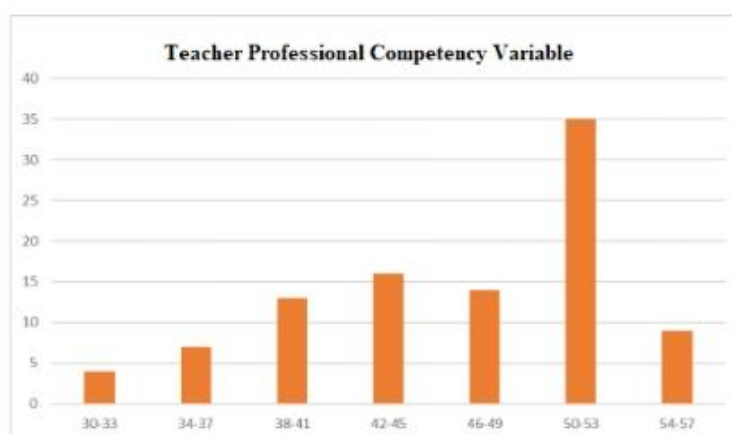
The population in this study were all fifth grade students at SD Negeri Se-Cluster Dwija Bhakti, Tembarak District, Temanggung Regency with a total of 130 students. While for the research sample using the random sampling technique, a sample of 98 students was obtained. Data collection techniques in this study used field study techniques by conducting research directly to submit research questionnaires to respondents and make observations or directly observe the object of research.

The data analysis technique in this study was carried out through several stages, namely validity and reliability tests which aimed to test whether the instrument to be used was valid and reliable. Validity and reliability testing was carried out on 22 students of fifth grade students at SD Negeri 1 Jragan, who were members of the Dwija Bhakti Group. After the instrument was declared valid and reliable, data analysis techniques were performed using prerequisite tests and classical assumptions through several tests, namely normality test, linear regression analysis, multiple linear regression analysis, multicollinearity test, heteroscedasticity test, and conducting hypothesis testing using multiple correlation analysis, coefficient determination, and simultaneous test.

Results

In this study, the objects of the research were the fifth-grade students at SD Negeri Se Gugus Dwija Bhakti, Tembarak District, Temanggung Regency, totaling 98 people and spread over 7 elementary schools with details, SD Negeri 1 Jragan 14 students, SD Negeri 2 Jragan 20 students, SD Negeri Drono 17 students, SD Negeri Gandu 20 students, SD Negeri Botoputih 11 students, SD Negeri 1 Grege 8 students, and SD Negeri 2 Grege 8 students.

Teacher Professional Competency Variable

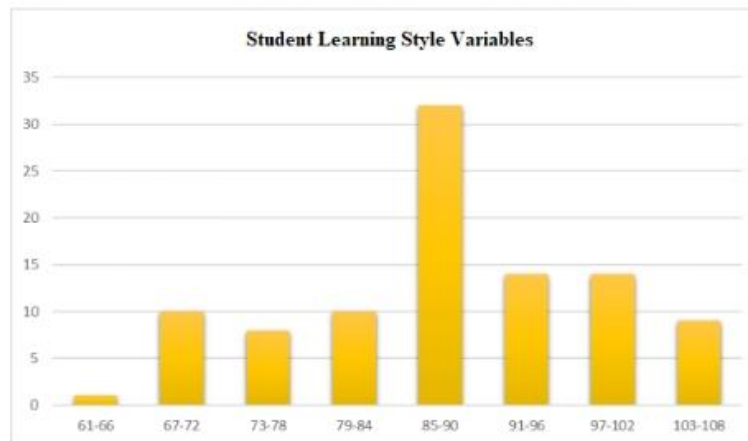


Graph 1. teacher's professional competence score

The variable of teacher professional competence consists of 15 statements regarding teacher professional competence which were given to 98 respondents to be filled in. The results from the descriptive analysis test show that the teacher's professional competency variable has an average value (mean) of 46.66 with a maximum value of 57 and a minimum value of 30. As well has a standard deviation of 6.810 which means that the maximum increase in the average teacher's professional competency variable is 6,810. Meanwhile, 4 people scored 30-33, 7 people got 34-37, 13 people got 38-41, 16 42-45, 14 46-49, 35 50-53 people, and a value of 54 – 57 as many as 9 people.

Teacher Professional Competency Variable

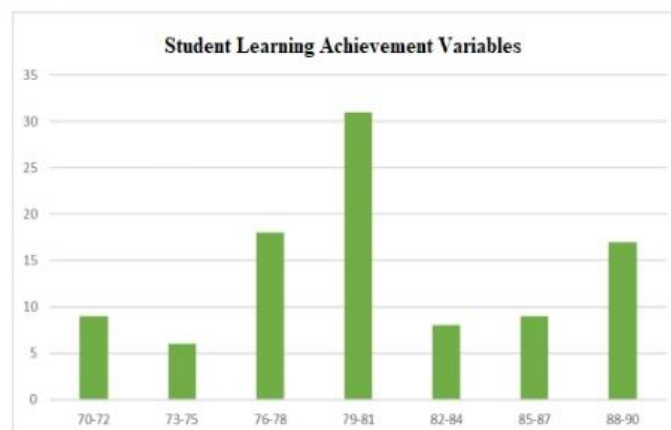
The student learning style variable consists of 30 statements regarding student learning styles and is given to 98 respondents.



Graph 2. The value of the variable learning styles of students

The result is the amount of data studied amounted to 98 samples. The student learning style variable has an average (mean) value of 88.14 with a maximum value of 108 and a minimum value of 61, and a standard deviation of 10.592 which means that the maximum increase in the average student learning style variable is 10.592. Meanwhile, the score 61-66 is 1 person, 67-72 is 10 people, 73-78 is 8 people, 79-84 is 10 people, 85-90 is 32 people, 91-96 is 14. people, the value of 97-102 is 14 people, and the value of 103-108 is 9 people.

Student Learning Achievement Variables



Graph 3. the value of the variable learning styles of students

Data on the learning achievement variable of students was obtained from the grades of the Science subject in Semester I of Class V SD Negeri Se Gugus Dwija Bhakti for the 2021/2022 academic year. The student achievement variable has an average value (mean) of 80.71 with a maximum value of 90 and a minimum value of 70, with a standard deviation of 5.541 which means that the maximum increase in the average student achievement variable is 5.541. Meanwhile, the scores obtained were 9 people 70-72, 6 people 73-75, 18 people 76-78, 31 79-81, 8 82-84, 85-87 9 people, and a value of 88 – 90 as many as 17 people.

Based on descriptive statistical analysis, the teacher professional competence variable (X1) has an average value (mean) of 46.66 with a maximum value of 57 and a minimum value of 30. As well as a standard deviation of 6.810 which means that the maximum increase in the average competency variable teacher professionalism is 6,810. Then the student learning style variable

(X2) has an average value (mean) of 88.14 with a maximum value of 108, and a minimum value of 61, and a standard deviation of 10.592 which means that the maximum increase in the average student learning style variable is 10.592. Furthermore, the learning achievement variable (Y) has an average value (mean) of 80.71 with a maximum value of 90 and a minimum value of 70, with a standard deviation of 5.541 which means that the maximum increase in the average student achievement variable is 5.541.

Meanwhile, before carrying out the multiple linear regression test, it is necessary to carry out classical prerequisite and assumption tests which include normality, linearity, multicollinearity, and heteroscedasticity tests. The results of the normality test use the Normal P-P Plot of regression standardized graph, the results of the data in the graph are spread around the line and follow the diagonal line, which means that the data is normally distributed. In addition, the normality test is also strengthened by the Kolmogorov Smirnov test, the result is that the Kolmogorov Smirnov value is 0.747 with a sig value of 0.632. So the sig value is $0.632 > 0.05$, it can be concluded that the residuals are normally distributed.

Then in the linearity test, for the dependent variable student achievement (Y) with the independent variable teacher professional competence (X1) it is known that the value of Sig. deviation from linearity is 0.240, so $0.240 > 0.05$, it can be concluded that there is a linear relationship between teacher professional competence and student achievement. While the linearity test for the dependent variable of student learning achievement (Y) with the independent variable teacher professional competence (X1) is known to be the value of Sig. deviation from linearity is 0.134, so $0.134 > 0.05$, it can be concluded that there is a linear relationship between student learning styles and student achievement.

In the multicollinearity test, the tolerance value of the teacher's professional competence variable is 0.680, and the tolerance value of the student's learning style is 0.680. While the VIF value of the teacher's professional competency variable is 1.470, and the VIF value of the learner's learning style variable is 1.470. So, from these data, it can be concluded that if the tolerance value is $0.680 > 0.10$, then multicollinearity does not occur, and if the VIF value is $1.601 < 10$, then multicollinearity does not occur. So, from the data above, there is no multicollinearity between independent variables (free) in the regression model, so the regression model is suitable for further analysis.

Meanwhile, in the heteroscedasticity test based on the scatterplot graph above, it can be seen that the points spread in an unclear pattern above and below the number 0 on the Y-axis. So, it can be concluded that there is no heteroscedasticity problem in the regression model. This was also reinforced by the Glejser-heteroscedasticity test which obtained the value of Sig. > 0.05 , then there is no heteroscedasticity, and if the Sig. < 0.05 , then there is heteroscedasticity. So, from the Glejser test table above, the Sig value for teacher professional competence is 0.181 > 0.05 , which means that heteroscedasticity does not occur, as well as the Sig value. students' learning style 0.40 > 0.05 also does not occur heteroscedasticity. So, from these results, it can be concluded that in the regression model, there is no heteroscedasticity problem.

After all the prerequisite tests are met, then a hypothesis test is carried out using multiple linear regression analysis approaches which includes analysis of the determinant coefficient, simultaneous test (f-test), and partial test (t-test). Analysis of the coefficient of determination is an analysis carried out to determine the effect of a variable on other variables. The value of the coefficient of determination is obtained from the value of R Square. The result is that the R Square value is 0.515 so the coefficient of determination is $0.515 \times 100\%$ which results in 51.5%. The coefficient of determination is 51.5% which can be interpreted that the Professional

Competence of Teachers (X1) and the Learning Styles of Students (X2) have a simultaneous or joint effect of 51.5% on Student Achievement (Y). While the remaining 48.5% is influenced by other factors not observed in the research that has been done.

The simultaneous test (f-test) aims to determine whether there is an influence jointly on the independent variable Teacher Professional Competence (X1) and Student Learning Style (X2) on the dependent variable Student Learning Achievement (Y). The result is a Fcount value of 50.387 with a p-value (sig) of 0.000. With $\alpha = 0.05$ and degrees of freedom (df) $v_1 = 98$ ($n - (k+1)$) and $v_2 = 3$, then we get Ftable 3.15. Since the value of Fcount > Ftable ($50.387 > 3.15$) then H_0 was rejected, which means that the variables of Teacher Professional Competence (X1) and Student Learning Style (X2) together have a significant effect on Student Learning Achievement (Y).

Then a partial test (t-test) is carried out to determine the effect of each variable Teacher Professional Competence (X1), and Student Learning Style (X2) on Student Learning Achievement (Y). The result of testing the hypothesis of the Teacher Professional Competency variable (X1) obtained a t count value for the Teacher Professional Competency variable (X1) of 5.669 and a t table value of 1.665 and a sig. By 0.000. Since t count > t table ($5.669 > 1.665$) and sig. $0.000 < 0.05$, then H_0 is rejected and H_1 is accepted, meaning that Teacher Professional Competence (X1) has a significant effect on student achievement (Y). Meanwhile for testing the Student Learning Style variable (X2) based on the t count value for the Teacher Professional Competency variable (X1) of 10.039 and the t table value of 1.665 and the sig. of 0.000. Since t count > t table ($10.039 > 1.665$) and sig. $0.000 < 0.05$, then H_0 is rejected and H_2 is accepted, meaning that the Learning Style of Students (X1) has a significant effect on student achievement (Y).

Discussion

The background of this research is that the learning achievement of students in class V SD Se-Cluster Dwijabakti, Tembarak District, Temanggung Regency is not yet optimal which is indicated by the fact that there are still students who score below the Minimum Completeness Criteria (KKM) as a form of student achievement. This is because there are factors that influence it. Factors that affect learning achievement can be divided into two factors, namely internal factors and external factors (Adawiyah et al., 2020). Learning can be divided into two, namely internal factors and external factors. Internal factors are factors that come from within the individual, namely intelligence, learning style, training, motivation, and growth. While external factors are factors that come from outside the individual or from the social environment such as family factors, household conditions, teachers, learning facilities, and schools (Chania et al., 2020; Kunter et al., 2013).

From external factors, the one that has the greatest influence is the teacher who is a professional educator with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students in self-aged children's education through formal education, basic education, and secondary education. In carrying out these tasks' teachers are also required to develop their competencies which include professional, pedagogic, social, and personality competencies (Immah et al., 2020).

One of the teacher's competencies that is directly related to the cognitive domain of students in academics and has an influence on student achievement is professional competence which includes (1) mastery of material, structure, concepts, and scientific mindsets that support the

subjects taught; (2) master the competency standards and basic competencies in the subject/field of development being taught; (3) develop learning materials that are taught creatively; (4) develop professionalism in a sustainable manner by taking reflective action; (5) utilizing information and communication technology to communicate and develop themselves. Based on observations made by researchers during class V, several elementary schools in the Dwijabakti cluster showed that in the learning process there were several teachers who were not in accordance with the standards set in professional competence (Herlianto et al., 2018).

Apart from being influenced by external factors originating from the teacher's professional competence, student achievement is also influenced by internal factors, one of which is the learning style of students which can be interpreted as an approach to see and analyze how a student learns or the strategies carried out by each student to undergo the learning process, as well as understand new information from the learning process carried out. The problem is that most students still do not know what learning styles are in accordance with their characteristics, so that this becomes one of the determining factors for their learning achievement is not optimal. In addition, based on observations made by researchers, the teacher's lack of understanding of students' learning styles is also one of the factors in the not optimal learning achievement of students. The teacher's understanding of student learning styles will help achieve maximum learning achievement, and vice versa if understanding of student learning styles is still minimal, it will be one of the determining factors for student learning achievement is still low.

From the background above, researchers conducted research on Student Learning Achievement which was influenced by Teacher Professional Competence and Student Learning Styles. In this study, the population included all fifth-grade students in the Dwija Bhakti Cluster, Tembarak District, Temanggung Regency, totaling 130 students spread across 7 elementary schools. While the sample of this study used a sampling technique in which the researcher gave equal rights to the subjects to have the opportunity to be selected as a sample. The results of a population of 130 people with an error rate of 5%, the sample in this study amounted to 98 respondents.

The indicators in this study for the variable teacher professional competence were developed from the opinion of Mukhtar et al., (2020) which include: 1) mastery of the material, structure, concepts, and scientific mindset that supports the subjects taught; 2) mastery of competency standards and basic competencies in the subjects or areas of development being taught; 3) development of creatively taught subject matter; 4) continuous professional development; and 5) utilization of information and communication technology to communicate in the framework of self-development.

While the indicators of student learning styles were developed from the opinion of Deporter and Irawati et al., (2021) namely 1) visual learning style with neat and orderly indicators, attention to detail, remembering what is seen rather than what is heard, usually disturbed by noise, fast readers and diligent, often forget to convey verbal messages, often answer questions with short answers; 2) auditory learning style with indicators easily disturbed by noise, likes to read aloud and listen, usually fluent in speaking, learns more dominantly through what is heard, and is able to remember what is the result of the discussion rather than just listening to it, feels comfortable when speaking or discussing, preferring music rather than visual arts; and 3) kinesthetic learning style with indicators of speaking slowly, always physically oriented and moving a lot, touching other people to get attention, memorizing through sight, enjoying physical activity, not being able to stay silent for long periods of time, and understanding more learn by direct practice (Chania et al., 2020; González et al., 2018).

Furthermore, the instrument used in this study uses a Likert scale as the basis for determining the results of quantitative data. Before the research instrument was used, the researcher consulted with experts to validate the instruments that had been made. The expert appointed by the researcher to carry out instrument validation was the Tembarak District Elementary School supervisor. Data analysis techniques in this study used descriptive statistical analysis, and regression analysis, and the analytical test used consisted of a Prerequisite Test including normality test, linearity test, multicollinearity test, and heteroscedasticity test. While the Hypothesis Test includes multiple linear regression analysis, analysis of the coefficient of determination, simultaneous significance test (f-test), and t-test.

Teacher professional competence has a positive impact on improving student achievement. Professional teachers have the ability to plan, implement and evaluate learning systems and are capable of developing learning systems. However, the results of the study show that teacher professionalism has a capacity that is not dominant in influencing student achievement. This is in accordance with Utami et al., (2015) research which states that the value of teacher professionalism competition has an influence in increasing student achievement. These data indicate that there are other influences that can affect student achievement. Among them is the learning style of students in the classroom. students have different learning styles, of course this is a reference as a professional teacher who must be able to differentiate and accommodate and empower them to design plans for both the implementation and evaluation of the learning process to be carried out. This is in accordance with Wahyuningsih, (2017) research which states that students' learning styles have an influence on student achievement. However, the learning styles of students must be regulated by teacher management in the learning process so that when the learning process occurs they are not engrossed in class alone. Here the teacher must be able to facilitate each student's character when in the learning process (Noervadila et al, 2020; Omar et al., 2015).

Professional teachers must be more flexible in maintaining meaningful learning (Tsabitah et al, 2021). According to Saiman's research, in his research, he explained that professional teachers are teachers who are able to adapt to the needs of students in the learning process. so that learning methods or media must be adapted to the characteristics and according to the needs of students, especially to the school environment. This is in accordance with research conducted by Evi et al., (2021) which explains that the value of students' needs in learning is very important to be considered by a teacher. So that teachers can choose which strategies and media to use in the learning process that are tailored to the needs and existing school environment.

Conclusion

Based on the results of the data analysis that has been done, it can be concluded that the professional competence of teachers and the learning styles of students have an influence on student achievement. Student achievement depends on the professionalism of the teacher in planning to implement and evaluate the learning process. Then the increase in student achievement depends on the learning style of students in the learning process. Based on existing research, there needs to be a more in-depth test related to the relationship between teacher professionalism and student learning styles with student learning outcomes in class. Apart from that, it can also be tested by looking at both the intention to act factors and the students' locus of control.

Acknowledgment

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