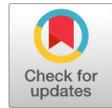


Influence Of Profesional Teacher Competence, Self Concept, Interest Learning, And Early To Learning Outcomes Mathematics

Hasnan Nafis, Rusdinal, Azwar Ananda, Khairani, Haris Satria



Abstract: This research is motivated by the problem of low learning result of mathematics of Pariaman high school students. Based on the observation and documentation, several factors that cause the low quality of professional teachers in teaching, student self-concept of the basics, low learning interest, and the initial ability of students who have not been awakened properly. The purpose of this study is to analyze the direct and indirect influence of each exogenous variable on endogen and analyze the effect simultaneously between variables. Thetype of this research is Path Analysis research, the research population is all students of SMA Pariaman amounting 4,160 people. The sample was taken using stratified proportional random sampling technique so that the number of samples taken was 100 people. Instruments used to retrieve data are questionnaires and documentation. Data were analyzed using SPSS version 16 analysis.

Keywords : Professional Teacher Competence, Self Concept, Learning Interest, Initial Ability, Learning Outcomes, Path Analysis, State Senior High School Pariaman.

(Bachrum, 2004: 21-23).In fact, the efforts made by the government in improving the education system in Indonesia are still faced with many problems. One of the problems is the low quality of Indonesian graduates, both at elementary, junior and senior high schools and even universities (PT). This is characterized by low learning outcomes obtained by learners when they complete a series of learning activities, but problems are still going on, especially on mathematics subjects in SMAN Kota Pariaman. In fact, mathematics learning achievement at high school level in Pariaman city is still low, it is marked by the low level of achievement of National Examination result in 2015/2016, that is, the average of 2015 is 61.29 and year 2016 is 54.78, but the achievement of rank at the level of West Sumatra rose from rank 9 to rank 6. For more details about the results of learning mathematics, researchers have obtained data details as follows:

Table 1: Result of National Examination of Mathematics Student of State Senior High School of Pariaman Year 2014/2015 and 2015/2016

Source: Documentation of Education Office of Pariaman City, 2018

When viewed from the table above, it can be analyzed that

No	Nama SMA	Rata-Rata Nilai		
		2013/2014	2014/2015	2015/2016
1	SMAN 1 Pariaman	74.65	75.8	78,65
2	SMAN 2 Pariaman	64.55	67.6	68.96
3	SMAN 3 Pariaman	64.78	65.5	67.76
4	SMAN 4 Pariaman	73.78	74,8	76.77
5	SMAN 5 Pariaman	70.2	73.67	77,98
6	SMAN 6 Pariaman	60	60.23	63.45

the acquisition of mathematics of students of State Senior High School Pariaman still far from expectations. If it is related to the minimum completeness of high school is 75, then almost all SMA Negeri Pariaman have problems in learning mathematics for three consecutive years in accordance with the information from the above table. This proves that math lessons are still a difficult subject for students.

I. INTRODUCTION

The Government of Indonesia has made many efforts to improve the quality of education. One of the fundamental changes in the field of Indonesian education is the enactment of Law No. 20 of 2003 / July 8, 2003 based on: (1) education management system, (2) education development system which must be controlled with vision and mission as well a clear strategy. One of the philosophies of educational development in the future is, education is organized as a process of culture and empowerment of learners that lasts throughout life, education is organized by giving exemplary, build a will, develop creativity of learners in the learning process. On the other hand improving the quality of education is also implemented by increasing the education budget (although not sufficient), increasing the number of educational facilities and infrastructure, curriculum development, increasing the quantity and quality of teachers, developing management systems and school services

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*Correspondence Author(s)

Hasnan Nafis, Post Graduate Education Science, Padang State of University.

Rusdinal, Education Science, Padang State of University. Profesor, Lecture & Researcher at Padang State of University.

Azwar Ananda, Education Science, Padang State of University. Profesor, Lecture & Researcher at Padang State of University.

Khairani, Post Graduate Education Science, Padang State of University.

Haris Satria, Post Graduate Environmental Science, Padang State of University. Active as Brand Activator, Lecturer & Researcher of Andalas University

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As stated by one of the students of SMAN 1 Pariaman with the initials "AH" that mathematics becomes a difficult subject for him and takes time to understand it. The same opinion was expressed by other students with the initials "WR" which emphasized that mathematics is a "scary" lesson for students because it deals directly with formulas that are difficult to memorize. The same condition is also felt by students from SMAN 4 Pariaman. Based on initial interview with one of the 2nd grade students with initials "JA" emphasizes that it is not easy to be successful in math exams, especially for high school level. The same thing was also added by the second grade teacher in high school who complained that at least the students who like the subject of mathematics, so that every effort made by teachers to improve mathematics less successful. Based on the documentation that researchers do in several schools, found also about the results of learning mathematics in the second class as follows

**Table 2: Average Semester Exam Results
School Year 2015/2016 and 2016/2017 Student Class 2
SMAN Pariaman City**

No	Name of School	Year 2014/2015		Year 2015/2016	
		Semester		Semester	
		1	2	1	2
1	SMA Negeri 1 Pariaman	67	86.7	78.7	80.9
2	SMAN Negeri 3 Pariaman	78	85	81	79
3	SMA Negeri 4 Pariaman	67.7	65.8	77.6	78,9
4	SMA Negeri 6 Pariaman	68.5	74.3	76.8	77.5

Source: Administration of SMA NegeriPariaman, 2018

Based on the above table, it is the mathematical value of students in some State Senior High School Pariaman experiencing problems. Based on the researchers' review into these schools, it is known that the KKM students for SMA is 75. That is, only a small percentage of the average class of students who passed the KKM. Thus it can be concluded that the results of learning mathematics students of State Senior High School Pariaman experiencing significant problems. In particular the purpose of this study is to determine whether there is:

1. Direct influence of teacher professional competence (X1) on Learning Outcomes
2. direct influence of self concept (X2) to learning result (Y)
3. direct influence of learning interest (X3) on learning outcomes (Y)
4. direct influence of initial ability (X4) on result of learning (Y)

5. direct influence of teacher professional competence (X1) on initial ability (X4)
6. Direct influence of self concept (X2) on initial ability (X4)
7. the direct influence of learning interest (X3) on initial ability (X4)
8. indirect influence of teacher professional competence (X1) on learning outcomes (Y) through initial ability (X4)
9. the indirect effect of self-concept (X2) on learning outcomes (Y) through initial ability (X4)
10. indirect influence of learning interest (X3) on learning outcomes (Y) through initial ability (X4)
11. simultaneous direct influence of teacher professional competence (X1), self concept (X2), learning interest (X3) and initial ability (X4) on learning outcomes (Y)
12. simultaneous direct influence of teacher professional competence (X1), self concept (X2), interest in learning (X3) on initial ability (X4)

II. THEORITICAL REVIEW

A. Learning Outcomes

According to Gagne (1977: 47) learning outcomes are capabilities, which can be categorized as: 1). Verbal information; ability to restate information obtained from the learning process, 2). Intellectual skill; through the process of learning a person will be able to function well in society, 3). Motor skills; ability to master various types of motion skills, 4). Attitude; capabilities that influence the choice of which action to take, such as the development of attitudes toward learning or attitudes toward achievement, and 5). Cognitive strategy; capabilities that govern how participants learn to manage their learning. According to Sudjana (2010: 22), learning outcomes are the abilities students have after receiving a learning experience. Further Warsito (2006: 125) suggests that the results of learning activities marked by a change in behavior toward a relatively positive positive in self-learning. In connection with that opinion, then Wahidmurni, et al. (2010: 18) explains that someone can be said to have succeeded in learning if he is able to show a change in him. Such changes include in terms of ability to think, skill, or attitude to an object. Learning outcomes used as a reference or benchmark teacher to determine the level of mastery of students to teaching materials or materials by conducting an evaluation at the end of the learning process and to measure learning outcomes are required tests. Gronlund (1978: 3), classifying learning outcomes on: 1). Knowledge, 2). Understanding, 3). Skills thinking, 4). Skilled in appearance, 5). Communication skills, 6). Numeracy skills, 7). Learning skills while working, 8). Socializing skills, 9). Attitude, 10). Interests, 11).Appreciation, and 12). Adjustments. While Bloom (1979: 7-9), classify the learning outcomes of three domains, namely: 1). Cognitive domain; related to knowledge change, 2). Affective sphere; related to the development or attitude change as a result of the learning process, and 3). Psychomotor domains relate to the mastery of motor skills.



B. Professional Teacher Competence

The professional teacher is the teacher who mixes the quality and integrity. They not only provide learning for learners but they also have to increase learning for themselves because the times are constantly changing. He must continue to improve his skills and skills in various fields.

As a comparison, the National Board for Professional Teaching Skill (2002) has formulated a standard of competence for teachers in America, which became the basis for teachers to obtain teacher certification, with the formulation of What Teachers Should Know and Be Able to Do.

C. Self Concept

The development of self-concept is determined by the interaction that is formed between the individual and the surrounding environment. This relates to the feed back or feedback provided by those around them on the behavior of the individual. Feedback given people *dilingkungannya* will affect the concept of self individu. If the feedback given by people in the neighborhood indicates acceptance then the individual feels accepted and will help the development of self-concept in a positive direction. But if the feedback given by people in their environment indicates rejection, the individual will feel neglected, alienated, inferior, and will form a negative self-concept.

Self-concept refers to a domain-specific evaluation of self. Children can make an evaluation of themselves in the domain of academic life, athletics, physical appearance and so on. Meanwhile, self esteem refers to the assessment globally. Nevertheless the terms self esteem and self-concept exists that are the same, and are often exchanged in the use of the term Santrock (1996: 384).

D. Interest to Learn

Interests are encouragement in a person or factors that generate interest or attention effectively, thus causing the choice of an object or activity that is profitable, pleasant, and bringing self-satisfaction. According to Sardiman (2012: 40) interest is influenced by two things, namely: know what will be studied and understand why it is worth to learn. Thus, interest is closely related to something interesting, fun, also related to the interests or needs to something that can give satisfaction to a person. If these things have decreased or decreased, then of course will also affect the decrease of one's interest. A person's learning interests can be generated by the need for knowledge, which provides answers to real-life challenges.

Shah (2010: 152) also reveals that interest is a high inclination and passion or a great desire for something. Susanto (2013: 57-58) argues that interest is the tendency of a person's soul to an object, usually accompanied by feelings of pleasure because they feel have an interest in something.

Interests can affect the quality of student achievement outcomes in certain fields of study. For example, a student with a great interest in mathematics will focus more on other students. Then, because of the intensive concentration of attention to the material that allows the student to study harder, and ultimately achieves the desired achievement (Shah, 2010: 152).

From the above description can be disclosed that the notion of interest contains four main things, namely (1) the feeling of pleasure in the person who gives attention to a particular

object, (2) the desire to succeed (3) the willingness to do learning activities

E. Initial Ability

Initial ability that Bloom (1976: 32) called cognitive entry behavior is the form of knowledge, skills or competence possessed by someone at the beginning of his studies and is a prerequisite for him in learning new lessons or advanced lessons. In a taxonomy, one continuum consists of several categories. In Bloom's old taxonomy it has only one dimension: knowledge, comprehension, application, analysis, synthesis and evaluation, while Bloom's revised taxonomy has two dimensions namely the dimensions of cognitive processes and the dimensions of knowledge. This initial ability is important for the lecturer to know before he / she starts with the lecture, thus it can be known (1). Whether the student has a skill or knowledge that is a prerequisite (Prerequisite) to attend the lecture. Without this prerequisite students can not be expected to follow the lectures well, (2). The extent to which students have known the material to be presented. By knowing that the lecturers can design the lecture process well, because if students are given material that has been known, then they often feel bored (Walter Dick and Lou Carey, 1990: 85). Furthermore, Walter Dick and Lou Carey argue that the transfer of learning will work well if there are many identical elements (related) between activities that have been done by students with new activities that will be faced. This statement is supported by the results of Husen's research which states that the transfer from one learning situation to another is dependent on how many elements are mastered before. The more the same elements learned earlier, the easier the learning transfer process for students to learn the next lesson. Indicator used in this research is as described by Degeng (2001), among others: meaningful knowledge, analogical knowledge, higher level knowledge, level of knowledge, knowledge of experience, and cognitive strategy.

III. RESEARCH METHOD

The type of this research is path analysis (Path Analysis). This research was conducted in SMA Negeri Kota Pariaman within 2 months and planned starting from December 2017 until February 2018. The population in this research is all students of SMAN Kota Pariaman which amounted to 4,160. Sampling technique using stratified proportional random sampling, so the number of samples taken amounted to 100 people. The instrument used in this research is Likert scale model questionnaire. To filter out opinions and attitudes with options: SS = Strongly agree, S = Agree, RR = Hesitate TS = Disagree, and STS = Strongly disagree. Instruments that have been compiled in test try to see the level of validity and stature (Validity and reliability). The process of examining the trials of these instruments follows the following steps: (1) determination of respondents, (2) Implementation and (3) analysis of trial data

A. Research Result and Discussion

Because the final formatting of your paper is limited in scale, you need to position figures and tables at the top and bottom of each column.



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Large figures and tables may span both columns. Place figure captions below the figures; place table titles above the tables. If your figure has two parts, include the labels “(a)” and “(b)” as part of the artwork. Please verify that the figures and tables you mention in the text actually exist. **Do not put borders around the outside of your figures.** Use the abbreviation “Fig.” even at the beginning of a sentence. Do not abbreviate “Table.” Tables are numbered with Roman numerals. Include a note with your final paper indicating that you request color printing.

1. Identifying Path Coefficients

Based on the results of multilevel regression analysis can be determined each path coefficient as follows:

- Regresi tahap 1 Beta $X_{1y} = 0,254$ (thitung = 2,478) = ρ_{y1}
- Regresi tahap 2 Beta $X_{2y} = 0,608$ (thitung = 2,248) = ρ_{y2}
- Regresi tahap 3 Beta $X_{3y} = 0,265$ (thitung = 3,956) = ρ_{y3}
- Regresi tahap 4 Beta $X_{4y} = 0,136$ (thitung = 1,536) = ρ_{y4}
- Regresi tahap 1 Beta $X_{14} = 0,094$ (thitung = 2,335) = ρ_{41}
- Regresi tahap 2 Beta $X_{24} = 0,103$ (thitung = 29,03) = ρ_{42}
- Regresi tahap 3 Beta $X_{34} = 0,083$ (thitung = 3,239) = ρ_{34}

2. Calculating the Path Coefficient for Residuals

- a. Path coefficient for residual teacher professional competence (X1), self concept (X2), interest in learning (X3) on initial ability (Y)

$$e_1 = \frac{0,254 \times 0,094 + 0,608 \times 0,103 + 0,265 \times 0,083}{0,136} = 0,17$$

- b. Path coefficient for residual teacher professional competence (X1), self concept (X2), learning interest (X3), initial ability (X4) on learning outcomes (Y)

$$e_2 = \frac{0,254 \times 0,094 + 0,608 \times 0,103 + 0,265 \times 0,083 + 0,136 \times 0,136}{0,136} = 0,423$$

3. Testing Influence Significance

Sub Structure I

- a) Direct influence of teacher professional competence (X1) on initial ability (X4).

$$X_1 \text{ terhadap } X_4 = \rho_{4.1} \times \rho_{4.1} = 0,094 \times 0,094 = 0,009$$

- b) The direct influence between self-concept (X2) on initial ability (X4)

$$X_2 \text{ terhadap } X_3 = \rho_{4.2} \times \rho_{4.2} = 0,013 \times 0,013 = 0,02$$

- c) The direct influence of learning interest (X3) on initial ability (X4)

$$X_3 \text{ terhadap } X_4 = \rho_{4.3} \times \rho_{4.3} = 0,083 \times 0,083 = 0,007$$

Based on the above calculation, it is known that the direct influence of learning interest variable (X3) to the initial ability variable (X4) that is equal to 0.007

- d) The direct influence of initial ability (X4) on learning outcomes (Y)

$$X_3 - (Y) = \rho_{y4} \times \rho_{y4} = 0,136 \times 0,136 = 0,02$$

Based on the above calculation can be concluded that there is a direct influence of initial ability variable (X4) on learning outcomes (Y) is equal to 0.02.

- e) Indirect influence of teacher professional competence (X1) on learning outcomes (Y) through initial ability (X4).

$$X_1 - Y \text{ } \Omega \text{ } X_4 = \rho_{y1} \times \rho_{X1X4} \times \rho_{y4} = 0,254 \times 0,094 \times 0,136 = 0,003$$

Based on the above calculation, it is known that the indirect influence of teachers' professional competence variable (X1) on learning outcomes (Y) through initial ability (X4) is 0.003.

- f) The indirect influence between self-concept (X2) on learning outcomes (Y) through initial ability (X4).

$$X_2 - Y \text{ } \Omega \text{ } X_4 = \rho_{y2} \times \rho_{X2X4} \times \rho_{y4} = 0,608 \times 0,103 \times 0,136 = 0,009$$

The above calculation shows that the indirect influence of self concept variable (X2) on learning outcomes (Y) through initial ability (X4) is equal to 0.009

- g) The indirect influence of learning interest (X3) on learning outcomes (Y) through initial ability (X4).

$$X_3 - Y \text{ } \Omega \text{ } X_4 = \rho_{y3} \times \rho_{X3X4} \times \rho_{y4} = 0,265 \times 0,083 \times 0,136 = 0,003$$

The above calculation shows that the indirect influence of learning interest variable (X3) on learning outcomes (Y) through initial ability (X4) is 0.003

- h) Effect of teacher professional competence (X1), self concept (X2), interest in learning (X3), and initial ability (X4) simultaneously on learning outcomes (Y)

$$X_1, X_2, X_3, X_4 - Y = (\rho_{yx1}) + (\rho_{yx2}) + (\rho_{yx3}) + (\rho_{yx4}) = (0,254 \times 0,859) + (0,608 \times 0,858) + (0,265 \times 0,740) + (0,136 \times 0,846)$$

$$= 0.218 + 0.521 + 0.197 + 0.115$$

$$= 1.033$$

The above calculation shows that the influence of professional competence of teacher (X1), self concept (X2), interest of learning (X3), and initial ability (X3) simultaneously to learning result (Y) is 1.033. Based on the calculation of the above analysis there are direct and indirect effects between exogenous variables on endogen.

1. Direct influence of professional competence of teacher (X1) to learning result (Y) equal to 0,065
2. Direct influence of self concept (X2) to result of learning (Y) equal to 0,37
3. Direct influence of learning interest (X3) on learning outcomes (Y) of 0.07
4. The direct influence of initial ability (X4) on learning outcomes (Y) of 0.02
5. Direct influence of teacher professional competence (X1) on initial ability (X4) is 0,009
6. Direct influence of self concept (X2) on initial ability (X4) equal to 0,02
7. The direct influence of learning interest (X3) on initial ability (X4) is 0.007
8. Indirect influence of teacher professional competence (X1) on learning outcomes (Y) through initial ability (X4) of 0.003
9. The indirect effect of self-concept (X2) on learning outcomes (Y) through initial ability (X4) is 0.009
10. The indirect influence of learning interest (X3) on learning outcomes (Y) through initial ability (X4) of 0.003
11. Influence of professional competence of teacher (X1), self concept (X2), learning interest (X3) and initial ability (X4) simultaneously to learning result (Y) 1,033
12. Influence of professional competence of teacher (X1), self concept (X2), interest of learning (X3) simultaneously to initial ability (X4) equal to 0,93

IV. CONCLUSION

1. Direct influence of professional competence of teacher (X1) on result of learning (Y) equal to 0,065
2. Direct influence of self concept (X2) on result of learning (Y) equal to 0,37
3. The direct influence of learning interest (X3) on learning outcomes (Y) of 0.07
4. The direct influence of initial ability (X4) on learning outcome (Y) is 0.02
5. Direct influence of teacher professional competence (X1) on initial ability (X4) is 0,009
6. Direct influence of self concept (X2) on initial ability (X4) equal to 0,02
7. The direct influence of learning interest (X3) on initial ability (X4) is 0,007
8. Indirect influence of teacher professional competence (X1) on learning outcomes (Y) through initial ability (X4) of 0.003
9. The indirect effect of self-concept (X2) on learning outcomes (Y) through initial ability (X4) is 0.009
10. Indirect influence of learning interest (X3) on learning outcomes (Y) through initial ability (X4) of 0.003
11. The influence of professional competence of teacher (X1), self concept (X2), learning interest (X3) and initial ability (X4) simultaneously to learning result (Y) is 1,033

12. Influence of professional competence of teacher (X1), self concept (X2), interest of learning (X3) simultaneously to initial ability (X4) equal to 0,93

IMPLICATIONS

1. In learning mathematics need to be paid attention and enhanced professional competence of teacher, self concept, interest learn, and ability of student early in every learning
2. Efforts to improve the professional competence of teachers, Professional competence is the basic ability of teachers in knowing the foundation of education and learning process in the form of knowledge in designing, implementing and evaluating the learning process which includes mastery of science, teaching methods and educational technology in running the teacher profession which can be improved through: 1) 2) mastering the lesson materials, 3) developing the teaching program, 4) implementing the teaching program and 5) carrying out the evaluation of the learning process outcomes that have been implemented.
3. Efforts to improve student self-concept, Giving information from students in making considerations and decisions about himself related to learning activities Mathematics. Indicators that need to be improved on students in developing positive self-concept students can be done by helping and encouraging students to have the ability in (1). Directing and commanding others, (2). Speaking according to the situation, (3). Expressing opinions, (4). Participate in social activities, (5). Working in groups, (6). Paying attention to others when speaking, (7). Make eye contact while speaking, (8). Being hospitable in dealing with others, (9). Maintain a comfortable distance between self and others, (10). Speaking fluently in the conversation
4. Efforts to increase student interest in learning, Students' learning interests are formulated as the attention and interest of a person who leads to learning activities. Students' interest in learning Mathematics can be improved by growing (1) feeling of pleasure, (2) desire to succeed, (3) willingness to perform activities, (4) student attention in learning mathematics.
5. Efforts to improve students' early skills, Preliminary skills are all aspects or qualities of students who are very influential in the selection of optimal teaching strategies to fit the characteristics of students Students who have
6. the required initial ability have the possibility to follow and carry out the next learning tasks. In order for the initial ability to grow before the learning begins, the goal that the teacher should increase to the students is to provide (1) meaningful knowledge, (2) analogical knowledge, (3) higher level knowledge, (4) level of knowledge, (5) knowledge of experience, (6)
7. cognitive strategy in every learning.

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AUTHORS PROFILE

Hasnan Nafis Post Graduate Education Science, Padang State of University.

Rusdinal Education Science, Padang State of University. Profesor, Lecture & Researcher at Padang State of University.

Azwar Ananda Education Science, Padang State of University. Profesor, Lecture & Researcher at Padang State of University.

Khairani Post Graduate Education Science, Padang State of University.



Network).

Haris Satria Post Graduate Environmental Science, Padang State of University. Active as Brand Activator, Lecturer & Researcher of Andalas University. Join with organization : Sumbar Kreatif, AIDIA, Parfi Sumbar, Kadin Sumbar and ICCN (Indonesian Creative Cities