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Vocational School Students' Mathematics Learning Motivation: A Review Based on Controls Aspects, Belief in Learning and Self-Confidence

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Abstract: The aim of this research is to describe the controls of vocational school students ' confidence in mathematics learning and the self-confidence that vocational school students have when mathematics learning takes place. This is motivated by the weak mathematics learning outcomes of vocational school students so that an analysis of students learning motivation is needed to design relevant learning. The research method is using descriptive research with a qualitative approaches. The test subjects were 72 vocational school students, while the research instruments used was a questionnaire. The results of the research shows that vocational school students have a high level of learning motivation both in the aspects of control , trust in learning and self-confidence with an average of 3.00. The next research recommendation is to design learning according to the results of vocational school students ' learning motivation.

Keywords: motivation to learn mathematics, vocational school students, self-confidence, control beliefs

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A. INTRODUCTION

Student learning motivation is important to study, especially in learning mathematics. This is because learning motivation can increase students' attention and strong encouragement in learning, can train focus in solving problems, and can foster a sense of wanting to get good results. Motivation is very influential as a driving force in doing something that is useful for students' success in the learning process. Mobilization here takes the form of changes in energy within students which are characterized by actions and responses to goals that create and guarantee continuity and direct the learning process so that students can achieve learning goals as expected (Sardiman, 2011; Zega, 2020).

Learning motivation refers to the Pintrich, Schunk, and Meece theory, learning motivation has three aspects, including 1) hope component, 2) value component, and 3) affective component (Schunk et al., 2014) . The components of hope are divided into two, namely confidence in learning which refers to students' belief in themselves regarding their ability to learn and self-confidence which refers to students' belief in their ability to follow and master a lesson (Akmaliyah, 2022; Permana & Syafruddin, 2020) . The value components are divided into three, namely intrinsic orientation goals which refer to students' control and

encouragement in doing something without coercion from other people, extrinsic orientation goals which refer to encouragement from other people in the form of invitations or orders to do something and students' ability to relate to other people. , and task value which refers to students' interests and views on the value of a job or assignment (Akmaliyah, 2022; Sasmita et al., 2018; Satriya, 2021) . The affective component refers to affective or emotional reactions involving students' feelings in carrying out an activity (Akmaliyah, 2022) .

One aspect of learning motivation is self -control. Self -control is the ability a person has to regulate and control themselves over their actions (Kurniasih, 2014) . In learning, self -control means students' confidence in themselves and their desires and abilities in learning (Akmaliyah, 2022) . Self-control is influenced by two factors, including internal and external factors (Ghufron, M. Nur, 2018) . Internal factors refer to influences that come from within oneself, such as the way one manages oneself and one's abilities. Meanwhile, external factors refer to outside oneself, such as the surrounding environment and parents, which have an impact on a person's ability to control themselves.

Confidence in learning is also an aspect of learning motivation. Trust control is the ability possessed by a person to design, organize, direct behavior, be adept at reading situations, and the ability to shape himself (Ekasari & Yuliyana, 2012) . Students are able to regulate their way of thinking or control their cognition well if they have high control of trust, with high control of trust it has a good impact on students because they can face and make the right decisions when faced with a problem during learning. Thus, trust in learning refers to students' confidence in their own abilities in trying to achieve positive results in the learning process.

Apart from that, the aspect of self-confidence is also included in learning motivation. Self-confidence is the belief that students have in their ability to do something in learning activities to achieve certain results (Wahyuningtyas & Febrianingsih, 2018; Zega, 2020) . Self-confidence has a very important role in students, because it influences confidence in every way of solving problems carried out by students (Utami & Wutsqa, 2017) . So self-confidence refers to students' confidence in their skills in following and mastering a lesson in the learning process (Permana & Syafruddin, 2020; Rosito, 2015) .

Students who have high learning motivation have an impact on the mathematics learning process. The learning atmosphere can be active if students have high learning motivation (Kamaluddin, 2017) . In Kamaluddin's (2017) research regarding the influence of learning motivation on mathematics learning achievement and strategies to improve it, it was proven that learning motivation has an influence on learning achievement because students who have good motivation will have a greater tendency to achieve maximum learning achievement. Research by Muhammad (2016) states that high student learning motivation will foster a sense of courage to compete so that students will always want to compete to pursue higher achievements, thus making students disciplined and focused in their learning activities.

From various references on learning motivation, this research focuses on aspects of learning motivation including self-control, confidence in learning, and self-confidence. Thus, the aim of this research is to describe the control of confidence in vocational school students' learning regarding mathematics learning and vocational school students' self-confidence when learning takes place. The contribution of this research to mathematics learning is that it

provides an overview of motivation to learn mathematics seen from the aspects of self-control, confidence in learning, and self-confidence.

B. METHOD

This research uses a qualitative approach with descriptive research type. The subjects involved in this research were taken purposively with class XI respondents totaling 72 students at SMK Bangun Banua located in Baroqah Village, Kec. Simpang Empat, Tanah Bumbu Regency, South Kalimantan. This research is divided into three stages, namely 1) Initial steps, 2) Research implementation steps, and 3) Report writing steps. In the first step, the topic of the problem is determined, then the problem is formulated, and a literature review is carried out to obtain a precise and accurate theoretical basis. In the research implementation step, the questionnaire instrument is prepared and then distributed to students who are respondents in the research and checks the subject's answers to the results of the questionnaire that has been distributed. In the report writing step, the data that has been collected is analyzed as a whole and the results are compiled in a report according to the results of the research.

The instrument in this research uses a questionnaire in the form of a questionnaire regarding motivation to learn mathematics which contains questions divided into several indicators. The questionnaire is presented online using *Google form* and will be distributed online. This type of questionnaire is a closed questionnaire, respondents can only choose answers from the answer options provided. Each question is equipped with answer options using a Likert scale, namely 1 indicates strongly disagree, 2 indicates disagree, 3 indicates unsure, 4 indicates agree, and 5 indicates strongly agree. The mathematics learning motivation questionnaire consists of 17 questions which were developed based on aspects and produced an instrument framework as in table 1 below.

Table 1. Framework for Mathematics Learning Motivation Instruments

Indicator	Items
Self-control	1, 2, 7, 8, 13, 14, 18, 19, 24, 25, 30, 31
Trust in Learning	4, 10, 16, 21, 27, 33
Confidence	5, 11, 22, 28, 34

Data analysis (how to measure effectiveness) Data analysis uses the calculation of average scores and percentages and then formulates and describes them in the form of categories. The calculation of average scores and percentages is formulated as follows:

$$\text{Average} = \frac{\text{Score of Respondent's Answer} \times \text{Score}}{\text{Total Respondent}}$$

$$\text{Percentage} = \frac{\text{Respondent's in each score}}{\text{Total Respondent}} \times 100$$

The quantitative data that has been obtained is then converted into descriptive form and categorized with a range of values as listed in table 2.

Table 2. Research Categories

Mean Score	Category
$0 \leq R < 1$	Very low
$1 \leq R < 2$	Low
$2 \leq R < 3$	Currently
$3 \leq R < 4$	Tall
$4 \leq R < 5$	Very high

(Fendiyanto, 2020)

C. RESULTS AND DISCUSSION

1. Indicators on aspects of self-control, confidence in learning, and self-confidence

Based on the research that has been conducted, there are three aspects that will be discussed, including: 1) the self-control aspect, 2) the confidence aspect in learning, and 3) the self-confidence aspect. The self-control aspect consists of 12 question items with the highest and lowest averages for the self-control aspect being number 7 with an average of 3.65 and 30 with an average of 2.75. There are 6 categories that fall into the high category above 3.00, namely item numbers 2, 7, 8, 18, 19, and 31. And there are 6 categories that fall into the medium category below 3.00, namely 1, 13, 14, 24, 25, and 30. The comparison of the average scores obtained in the self-control aspect can be seen in Figure 1.

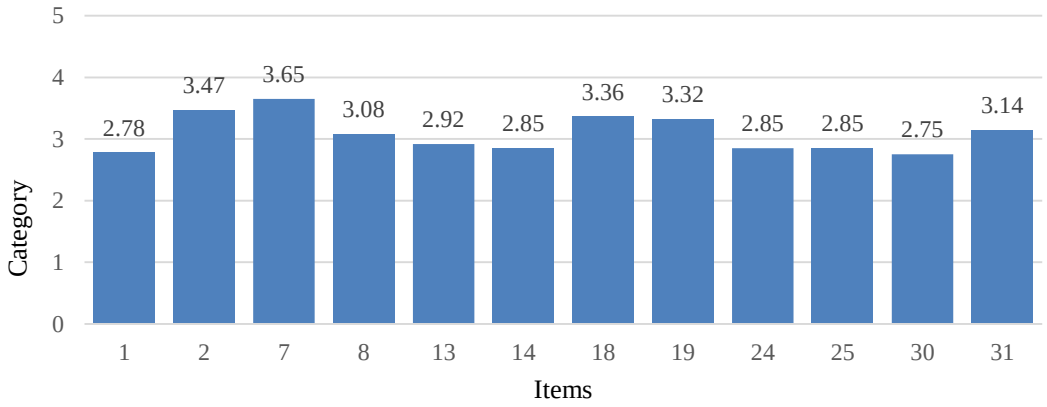

Figure 1. Diagram of Self-Control Aspects

The aspect of trust in learning consists of 6 question items with the highest and lowest averages in the aspect of trust in learning being number 10 with an average of 3.18 and 27 with an average of 2.57. There are 3 categories that fall into the high category above 3.00, namely item numbers 10, 21, and 33. And there are 63 categories that fall into the medium category below 3.00, namely 4, 16, and 27. The comparison of the average scores obtained in the aspect of self-control can be seen through figure 2.

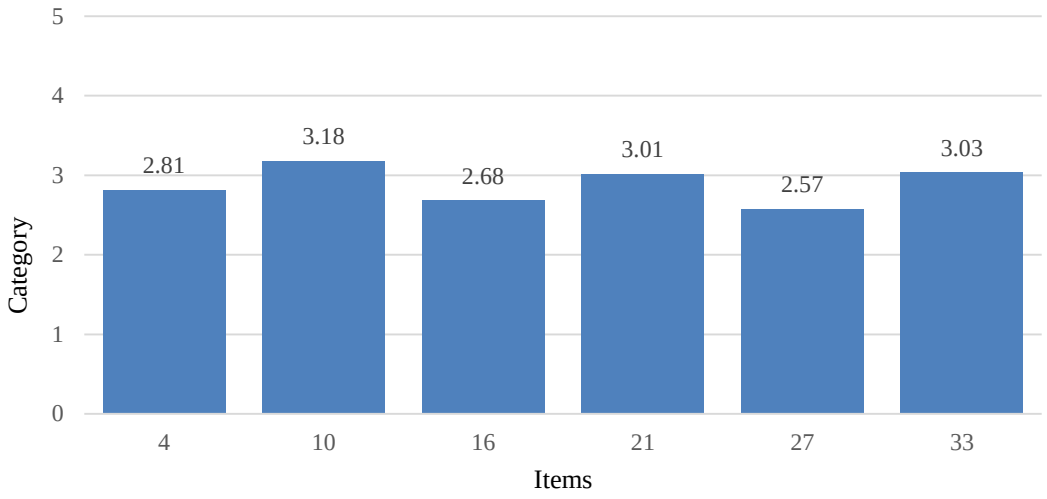

Figure 2. Diagram of Trust Aspects in Learning

The aspect of trust in learning consists of 5 question items with the highest and lowest averages in the aspect of trust in learning at number 22 with an average of 3.33 and 28 with an average of 2.54. There are 3 categories that fall into the high category above 3.00, namely item numbers 5, 22, and 34. And there are 2 categories that fall into the medium category below 3.00, namely 11 and 28. The comparison of the average scores obtained in the aspect of self-control can be seen via figure 3.

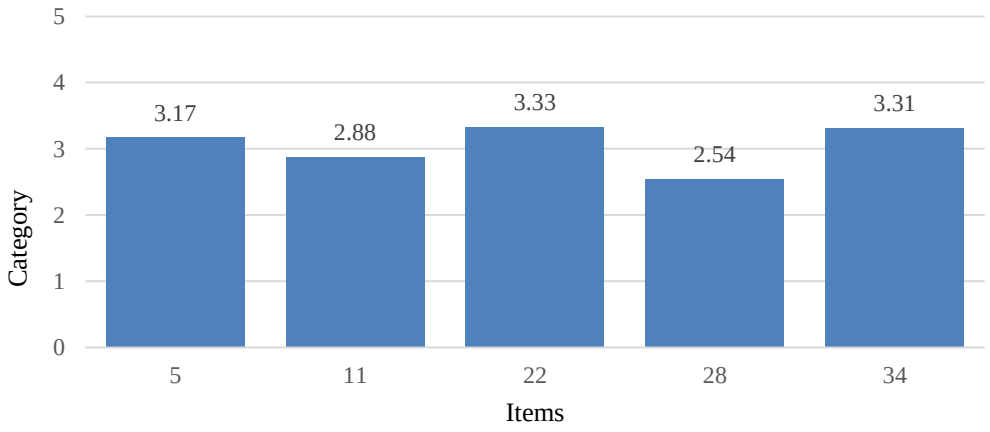

Figure 3. Diagram of Self-Confidence Aspects

2. Results of the Learning Motivation Questionnaire

The self-control aspect consists of 12 question items which are detailed in table 3 below.

Table 3. Aspects of Self-Control

No	Items	Score					Average
		1	2	3	4	5	
1	In math class, I like to have some material that challenges me and makes me learn more	10 13.89%	11 15.28%	39 54.17%	9 12.50%	3 4.17%	2.78
2	I am curious about the material in mathematics learning	3 4.17%	5 6.94%	29 40.28%	25 34.72%	10 13.89%	3.47
7	I really want to get the best grades in mathematics	9 12.50%	2 2.78%	19 26.39%	17 23.61%	25 34.72%	3.65
8	In my opinion, studying mathematics can improve my overall academic score	9 12.50%	6 8.33%	33 45.83%	18 25.00%	6 8.33%	3.08
13	I can apply the skills I learn from mathematics lessons to other subjects	7 9.72%	9 12.50%	41 56.94%	13 18.06%	2 2.78%	2.92
14	I feel interested in mathematics	12 16.67%	7 9.72%	37 51.39%	12 16.67%	4 5.56%	2.85
18	Mathematics has a big role for humans	5 6.94%	7 9.72%	31 43.06%	22 30.56%	7 9.72%	3.26
19	If I learn math properly, then I will do better in class	7 9.72%	7 9.72%	23 31.94%	26 36.11%	9 12.50%	3.32
24	If I had enough time to practice, I would have better results	10 13.89%	14 19.44%	31 43.06%	11 15.28%	6 8.33%	2.85
25	I believe I have excellent math scores	7 9.72%	17 23.61%	33 45.83%	10 13.89%	5 6.94%	2.85
30	During the math exam, I had negative thoughts that my score would be lower than other classmates	11 15.28%	16 22.22%	31 43.06%	8 11.11%	6 8.33%	2.75
31	During the math exam, I kept thinking about questions that I couldn't answer before	8 11.11%	9 12.50%	31 43.06%	13 18.06%	11 15.28%	3.14
	Amount	7.75	6.75	31.50	17.75	8.25	3.08

Judging from the average score of the 12 items in the self-control aspect, the respondents' responses were categorized as high, which means that students have high self-control in learning, both influenced by the students themselves and other people. This can be seen from the average score of 3.08 and it is in the high category. The aspect of trust in learning consists of 6 question items which are detailed in table 4 below.

Table 4. Aspects of Trust in Learning

No	Items	Score					Average
		1	2	3	4	5	
4	In math, I want to have a lot of homework that can help me learn more, even though it won't improve my grades	8 11.11%	16 22.22%	34 47.22%	10 13.89%	4 5.56%	2.81
10	I want to get better grades, because I want to tell my classmates about my abilities	11 15.28%	4 5.56%	31 43.06%	13 18.06%	13 18.06%	3.18
16	I like all mathematics subject matter	10 13.89%	14 19.44%	38 52.78%	9 12.50%	1 1.39%	2.68
21	If I study hard, I can understand mathematics subject matter	8 11.11%	12 16.67%	31 43.06%	13 18.06%	8 11.11%	3.01
27	I believe that I can master every mathematical material	14 19.44%	14 19.44%	38 52.78%	1 1.39%	5 6.94%	2.57
33	During exams, I was nervous and worried	13 18.06%	6 8.33%	31 43.06%	10 13.89%	12 16.67%	3.03
	Amount	5.82	6.00	18.45	5.09	3.91	2.88

Judging from the average and score categories of the 6 items in the control aspect of learning, the response from respondents is said to be moderate, which means that students have enough confidence in learning and solving mathematical problems during learning so that students feel quite skilled in achieving positive results. This can be seen from the average score of 2.88 and it is in the medium category. The self-confidence aspect consists of 5 question items which are detailed in table 4 below.

Table 5. Aspects of Self-Confidence

No	Items	Score					Average
		1	2	3	4	5	
5	Studying mathematics can improve the logic of my thinking	9 12.50%	11 15.28%	22 30.56%	19 26.39%	11 15.28%	3.17
11	My biggest desire is to get into a good university through mathematics	11 15.28%	5 6.94%	40 55.56%	14 19.44%	2 2.78%	2.88

22	If I can't understand any material in class, it's because I didn't study hard.	5 6.94%	6 8.33%	28 38.89%	26 36.11%	7 9.72%	3.33
28	I have the ability to teach material to classmates.	15 20.83%	14 19.44%	35 48.61%	5 6.94%	3 4.17%	2.54
34	During the math test, my heart beat faster	8 11.11%	7 9.72%	26 36.11%	17 23.61%	14 19.44%	3.31
	Amount	4.36	3.91	13.73	7.36	3.36	3.04

Judging from the average and category scores of the 5 items in the self-confidence aspect, the response from respondents is said to be high, which means that students have sufficient confidence and high self-confidence in following and mastering mathematics learning. This can be seen from the average score of 3.04 and is in the high category.

Table 6. Accumulated Student Mathematics Learning Motivation

No.	Aspect	Average	Category
1.	Self control	3.08	Tall
2.	Trust in learning	2.88	Currently
3.	Confidence	3.04	Tall
	Accumulation	3.00	Tall

Based on the data above, it is found that the accumulation of the three aspects is 3.00 and is included in the high category, which means that vocational school students' motivation to learn mathematics is high with reference to the aspects that have been determined.

D. CONCLUSIONS AND SUGGESTIONS

According to the findings that have been obtained, it can be concluded that the average mathematics learning motivation score in this study is in the high category . This shows that vocational school students' learning motivation is high in learning mathematics. The average results for each aspect are different. Based on the research results and the average numbers that have been obtained, several aspects must be improved to increase students' level of motivation to learn mathematics not only in the medium category but also high.

Based on the findings that have been obtained and carried out and have produced results as described, suggestions that can be given are that motivation to learn mathematics can be further increased by instilling enthusiasm in students to be able to complete the education they have undertaken, learn optimally in order to get maximum learning achievement and applying the knowledge learned at school in everyday life. Motivation to learn is in the high category. Therefore, to further increase motivation to learn mathematics, encouragement and support from family, teachers and people around them is needed so that students are more enthusiastic about learning mathematics so that they will be able to achieve the learning goals that have been set. It is hoped that this research data can be used as a reference for overcoming various problems related to students' mathematics learning motivation.

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