

Analysis of Factors Affecting Student Motivation

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Abstract - Learning motivation is the overall driving force within students. Learner motivation can be influenced by two main factors, namely internal factors and external factors, each of which has an important role in determining how much influence it has on the learning process. This study aims to analyze the factors that influence the learning motivation of students in class XI State Vocational High School 2 Padang Panjang (XI SMKN 2 Padang Panjang). Using quantitative methods with an ex post facto approach, this study involved a sample of 137 students selected by proportionate stratified random sampling. Data analysis was carried out using factor analysis techniques. The results showed that out of 34 variables, seven factors influenced learning motivation, with a total variation of 66.779%. The dominant factors were self-development and social environment, which accounted for 41.653% of the variation. The smallest factor was problem-solving skills in learning, with a variation of only 3.102%. The findings emphasize the importance of creating a learning environment that supports learners' personal and social development to enhance their learning motivation.

Keywords - Factor Analysis, Learning Motivation, Students, SMK Negeri 2 Padang Panjang.

I. INTRODUCTION

Education is a conscious and planned effort to provide guidance aimed at developing the physical and spiritual potential of children. This process is carried out by adults so that children can reach maturity and be able to carry out their life tasks independently [1]. In essence, education is a system to produce skilled human resources, able to compete and enter the world of work so that they are able to fill, create and expand employment opportunities in accordance with the objectives of national education

Vocational High School (SMK) is one form of formal education unit that organizes vocational education at the secondary education level that prepares students primarily to work in certain fields. State Vocational High School 2 Padang Panjang (SMKN 2 Padang Panjang) is a school that offers various expertise programs, such as the fields of Computer Network and Telecommunication Engineering, Visual Communication Design, Software Development and GIM as well as Broadcasting and Film. These programs aim to equip learners with the skills, knowledge and attitudes necessary for them to be competent in their fields.

Learning activities in the entire educational process at school include several stages of the process including the theoretical material provision stage and the practice process. The first stage is the provision of theoretical material, this stage aims to equip learners with basic knowledge about the

concepts related to the material being taught. After getting the theoretical basis, learners then proceed to the practical stage, where they apply the concepts they have learned to real situations. The combination of these two stages ensures that learners not only understand the theory but are also able to apply it effectively in real situations. However, to realize this goal, it is necessary to have a high level of learning motivation in students. Because high enthusiasm and encouragement will trigger an increase in motivation so as to improve skills in learning.

Motivation is a drive that comes from within and outside a person to encourage them to do something in accordance with the desires that exist within themselves so that they can achieve the goals that have been set before [2]. Learner motivation can be influenced by two main factors, namely internal factors and external factors, each of which has an important role in determining how much influence it has on the learning process. Internal factors include elements that come from within the learners, whereas, external factors include elements from the learners' external environment that affect their motivation.

Based on the results of observations made by researchers while carrying out Field Work Practices (PLK), researchers found a lot of problems that occurred due to the low motivation of students when the Teaching and Learning Process (PBM) was carried out, for example, many students did not participate in learning activities properly when learning was going on, There are students who when given assignments by the teacher they immediately do it and some are reluctant to immediately complete it so that at the end of the task collection time choose to cheat on friends' work, do not utilize learning facilities properly and prefer to talk to their classmates and there are students who are reluctant to answer questions in class because they are worried they will get the wrong answer and feel embarrassed in front of their friends.

Learning interest is a student's interest in the learning process which is indicated by a desire to learn, seriousness and participation in certain learning without pressure or encouragement from other parties. Learning interest and

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learning motivation have the same direction. The same direction that is meant is that when students' interest in learning increases, the same thing happens to learning motivation. Likewise, on the contrary, when interest in learning decreases, learning motivation will also decrease [3].

In addition to interest in learning, learning independence is also one of the internal factors that can increase student learning motivation. Learning independence is a learning system based on self-discipline using learning methods that suit their own pace, where individuals will continue to learn to be independent in dealing with various situations in their environment so that individuals will eventually be able to think and act on their own. An independent person means he thinks creatively. Creative action has a lot to do with the intelligence of a creative person [4].

Another internal factor is self-confidence, self-confidence enables learners to identify and develop their talents and potential more clearly, so that they can excel in areas that match their expertise. This motivates them to take initiative, face challenges and pursue academic and personal goals with determination. Self-confidence is a person's belief in the strengths and weaknesses that exist in him positively and see that he is able to do something with the abilities he has. Self-confidence in students is very influential on their learning motivation [5].

In addition to internal factors, external factors such as family, school and community environment can also affect learners' motivation to learn. Lack of family support, emotional instability and unstable economic conditions can reduce learning enthusiasm and concentration, while inadequate school facilities and involvement in unproductive groups can distract from academic goals. In the community, unrealistic expectations and social pressures for high academic achievement without considering individual abilities can add to the psychological burden and reduce motivation.

The family environment is the main foundation in the education and character building of learners. Support and guidance from the family greatly influence learners' motivation to achieve their academic goals. The presence of learning equipment at home, such as books, computers, or a comfortable study room, also affects learners' learning activities. The family, which is the first place where children learn to share things, is expected to be able to create a conducive home atmosphere so that children will be eager to learn and be able to increase learning motivation at school. In the learning process, motivation is very necessary, because someone who does not have motivation in learning, will not be able to carry out learning activities properly. From this opinion, it is known that motivation is very necessary in encouraging someone to carry out learning activities. The family environment, which is the first place for a child to get to know education, is expected to be able to provide direction and encouragement as well as the creation of a comfortable learning atmosphere so as to increase student learning motivation [6].

In addition to the family environment, the school environment plays an important role in students' academic achievement. A conducive environment and adequate facilities support the learning process more effectively. The better the school environment, the more motivated students

will be to study harder and improve their skills. The school environment is also a bridge in conveying culture to students. With a conducive school environment, it is expected that students can develop the potential that exists in themselves and can learn comfortably and safely [7].

Another external factor is the community environment. The community environment is the third educational institution after education in the family environment and the school environment. Society can be interpreted as a form of social life with its own values and culture. Society when viewed from the concept of sociology is a group of people who live in an area and interact with each other to achieve goals [8]. The community environment plays a role in the learning process of students, both directly and indirectly. A society consisting of groups of people who are poorly educated and have bad habits will have a bad effect on students who are in that environment. Vice versa, a good community environment will also have a positive influence on students. Communities that support education by providing access to information and the existence of learning programs outside of school can provide additional motivation for students to study more seriously

From this fact, it can be indicated that the low motivation of students in participating in the teaching and learning process is caused by various factors that influence it. Based on the explanation above, this study aims to determine and analyze the factors that influence the learning motivation of students in class XI of SMK Negeri 2 Padang Panjang.

II. METHOD

This type of research is quantitative research with an *Ex post facto* approach. This type of quantitative research is a research method based on the philosophy of positivism, used to research on certain populations or samples, data collection using research instruments, data analysis is quantitative / statistical, with the aim of testing predetermined hypotheses and *Ex post facto* approach is a study conducted to examine an event that has occurred and then look back to find out the factors that can cause the event [9].

This study population is class XI students of SMKN 2 Padang Panjang with a total of 208 people. These students are divided into 4 expertise programs namely Computer Network and Telecommunication Engineering, Visual Communication Design, Software Development and GIM and Broadcasting and Film. In this study using the *Probability Sampling* method with the sampling technique is *Proportionate Stratified Random Sampling*. So that a sample of 137 people was obtained. The data collection technique in this study used a questionnaire with a Likert scale.

The data analysis technique used in this research is factor analysis. Factor analysis is a study of the interdependence between variables with the aim of finding a new set of variables that are fewer in number than the original variables, Factor analysis with the Principal Component Analysis (PCA) method aims to reduce the number of variables that were previously many into several new sets of variables that are fewer in number. The Principal Component Analysis (PCA) method allows the simplification of complex data while maintaining the most relevant information [10]. This process

aims to identify variables that are interrelated factors among the initial variables. The factor analysis process includes stages such as Determining what variables will be analyzed, Testing the specified variables, using the KMO (*Kaiser Meyer Olkin*) method, *Bartlett test of sphericity* and MSA (*Measure of Sampling Adequacy*) measurement, Extraction or factoring process, Determining the number of factors, Rotation of factors and Interpretation of factors [11].

III. RESULTS AND DISCUSSION

A. Instrument Trial

1) Validity Test

The validity test is a test used to assess the extent to which the instrument used can show a significant positive correlations [12]. This validity test is carried out to ensure that the instrument used is valid so that it can measure what should be measured. This instrument was tested on class XI students outside the sample of 30 people but still in the same population. This is in line with Singarimbun's opinion which states that the minimum number of questionnaire trials is at least 30 respondents. With a minimum number of 30 people, the distribution of values will be closer to the normal curve [13]. The criteria for whether or not a data is valid or not if $r_{\text{count}} > r_{\text{tabel}}$ then the item is declared valid and if $r_{\text{count}} < r_{\text{tabel}}$ then the item is declared invalid [14]. Based on the validity test, it is known that 34 statements are in the condition of $r_{\text{count}} > r_{\text{tabel}}$, it can be concluded that a statement item from the questionnaire is declared valid.

2) Reliability Test

TABELL I
RELIABILITY TEST

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .946 | 34 |

Based on tabel 1, the results of the reliability test of the instrument of the factors that influence the earning motivation of class XI students of SMK Negeri 2 Padang Panjang show the *Cronbach's Alpha* value of 0,946 with a total of 34 variables. The reliability test criteria using Cronbach's Alpha are if the Cronbach's Alpha value > 0.60 then the questionnaire or questionnaire is declared reliable [14]. Because $0.946 > 0.60$, it can be concluded that a question item from the questionnaire have very high reliability.

B. Analysis Techniques

The analysis technique used is factor analysis. The stages of factor analysis include Determining what variables will be analyzed, Testing the specified variables, using the KMO (*Kaiser Meyer Okin*) method, *Bartlett test of sphericity* and MSA (*Measure of Sampling Adequacy*) measurement, Extraction or factoring process, Determining the number of factors, Rotation of factors and Interpretation of factors. The results of the factor analysis are as follows:

1) Determine what variables will be analyzed

The formulation of the problem in the study is what factors affect the earning motivation of students in class XI SMK Negeri 2 Padang Panjang. To answer this problem, 34 variables that are relevant to the research are used and then analyzed using the factor analysis method.

- 2) Testing the specified variables, using the KMO (*Kaiser Meyer Okin*) method, *Bartlett test of sphericity* and MSA (*Measure of Sampling Adequacy*).

TABELL II
KMO TEST AND BARTETT'S TEST

| | |
|---|--------------------|
| Kaiser-Meyer-Okin Measure of Sampling Adequacy. | .903 |
| Bartlett's Test of Sphericity | Approx. Chi-Square |
| | 2906.557 |
| | df |
| | 561 |
| | Sig. |
| | .000 |

Based on tabel 2, the *Kaiser Mayer Okin Measure of Sampling Adequacy* (KMO MSA) and *Bartlett test of sphericity* values can be explained as follows:

3) Bartlett test of sphericity

Based on the results of data processing using SPSS 22, it shows that the Bartlett test of sphericity value is 2906.557 with a significant value of 0.000, which means that the *Bartlett test of sphericity* value ($p\text{-value}$) < 0.05 . Therefore, the variables that influence the earning motivation of students in class XI of SMK Negeri 2 Padang Panjang are 34 variables.

4) Kaiser Mayer Okin (KMO)

Based on the results of data processing using SPSS 22, it shows that the *Kaiser Mayer Okin Measure of Sampling Adequacy* (KMO MSA) value is 0.903. Kaiser Mayer Okin Measure of Sampling Adequacy (KMO MSA) test is a test conducted to check the adequacy of data to be analyzed using factor analysis. the criteria for data adequacy using the KMO-MSA test is that the Kaiser Mayer Okin Measure of Sampling Adequacy (KMO MSA) value must be more than 0.50 [15]. Because $0.903 > 0.5$ so it can be concluded that the amount of data has been sufficiently factored with very good data criteria.

5) Measure of Sampling Adequacy (MSA)

Based on the results of data processing using SPSS 22, the *Measure of Sampling Adequacy* (MSA) value is as follows:

TABELL III
MEASURE OF SAMPLING ADEQUACY (MSA) TEST

| Variabels | MSA |
|-----------|-------|
| X1 | 0,919 |
| X2 | 0,871 |
| X3 | 0,927 |
| X4 | 0,929 |
| X5 | 0,895 |
| X6 | 0,772 |
| X7 | 0,919 |
| X8 | 0,912 |
| X9 | 0,910 |
| X10 | 0,904 |
| X11 | 0,900 |
| X12 | 0,928 |
| X13 | 0,867 |
| X14 | 0,929 |
| X15 | 0,931 |
| X16 | 0,918 |
| X17 | 0,884 |
| X18 | 0,883 |
| X19 | 0,919 |
| X20 | 0,913 |
| X21 | 0,815 |
| X22 | 0,842 |
| X23 | 0,909 |
| X24 | 0,927 |
| X25 | 0,900 |
| X26 | 0,869 |
| X27 | 0,917 |

| Variabes | MSA |
|----------|-------|
| X28 | 0.931 |
| X29 | 0.872 |
| X30 | 0.852 |
| X31 | 0.893 |
| X32 | 0.943 |
| X33 | 0.918 |
| X34 | 0.927 |

Based on tabel 3, the *Measure of Sampling Adequacy* (MSA) vaue shows that a variabes have an MSA vaue > 0.5, which means that the variabes are sti predictabel and can be anayzed further.

C. Extraction or factoring process

1) Communitities

TABELL IV
COMMUNAITIES

| Variabes | Initial | Extraction |
|----------|---------|------------|
| X1 | 1 | 0.547 |
| X2 | 1 | 0.688 |
| X3 | 1 | 0.613 |
| X4 | 1 | 0.533 |
| X5 | 1 | 0.748 |
| X6 | 1 | 0.698 |
| X7 | 1 | 0.685 |
| X8 | 1 | 0.781 |
| X9 | 1 | 0.562 |
| X10 | 1 | 0.562 |
| X11 | 1 | 0.685 |
| X12 | 1 | 0.644 |
| X13 | 1 | 0.703 |
| X14 | 1 | 0.737 |
| X15 | 1 | 0.527 |
| X16 | 1 | 0.728 |
| X17 | 1 | 0.689 |
| X18 | 1 | 0.677 |
| X19 | 1 | 0.769 |
| X20 | 1 | 0.669 |
| X21 | 1 | 0.757 |
| X22 | 1 | 0.656 |
| X23 | 1 | 0.697 |
| X24 | 1 | 0.731 |
| X25 | 1 | 0.582 |
| X26 | 1 | 0.715 |
| X27 | 1 | 0.692 |
| X28 | 1 | 0.645 |
| X29 | 1 | 0.589 |
| X30 | 1 | 0.73 |
| X31 | 1 | 0.696 |
| X32 | 1 | 0.663 |
| X33 | 1 | 0.683 |
| X34 | 1 | 0.622 |

Based on tabel 4, the *communitities* vaue shows the extent to which each variabe studied can explain the existing factors. A variabe is considered to explain the factor if its *extraction* vaue is greater than 0.50. Based on the tabel, it can be seen that the *extraction* vaue for a variabes is more than 0.50, so it can be concuded that a these variabes can be used to explain the factors.

2) Tota Variance Expained

TABELL V
TOTAL VARIANCE EXPAINED

| Component | Initial Eigenvaues | | |
|-----------|--------------------|---------------|-------------|
| | Total | % of Variance | Cumuative % |
| 1 | 14.162 | 41.653 | 41.653 |
| 2 | 1.938 | 5.699 | 47.353 |
| 3 | 1.632 | 4.800 | 52.153 |
| 4 | 1.420 | 4.176 | 56.328 |
| 5 | 1.251 | 3.679 | 60.007 |
| 6 | 1.248 | 3.670 | 63.677 |
| 7 | 1.055 | 3.102 | 66.779 |
| 8 | .885 | 2.604 | 69.383 |
| 9 | .804 | 2.364 | 71.747 |
| 10 | .772 | 2.270 | 74.017 |
| 11 | .754 | 2.218 | 76.235 |
| 12 | .681 | 2.001 | 78.237 |
| 13 | .638 | 1.875 | 80.112 |
| 14 | .607 | 1.785 | 81.897 |
| 15 | .572 | 1.683 | 83.580 |
| 16 | .530 | 1.559 | 85.139 |
| 17 | .517 | 1.521 | 86.659 |
| 18 | .485 | 1.425 | 88.084 |
| 19 | .444 | 1.305 | 89.390 |
| 20 | .401 | 1.179 | 90.569 |
| 21 | .374 | 1.100 | 91.669 |
| 22 | .356 | 1.047 | 92.717 |
| 23 | .330 | .972 | 93.688 |
| 24 | .297 | .873 | 94.562 |
| 25 | .268 | .789 | 95.351 |
| 26 | .237 | .696 | 96.046 |
| 27 | .220 | .647 | 96.693 |
| 28 | .215 | .631 | 97.325 |
| 29 | .199 | .584 | 97.909 |
| 30 | .169 | .497 | 98.406 |
| 31 | .163 | .479 | 98.884 |
| 32 | .150 | .441 | 99.325 |
| 33 | .129 | .379 | 99.705 |
| 34 | .100 | .295 | 100.000 |

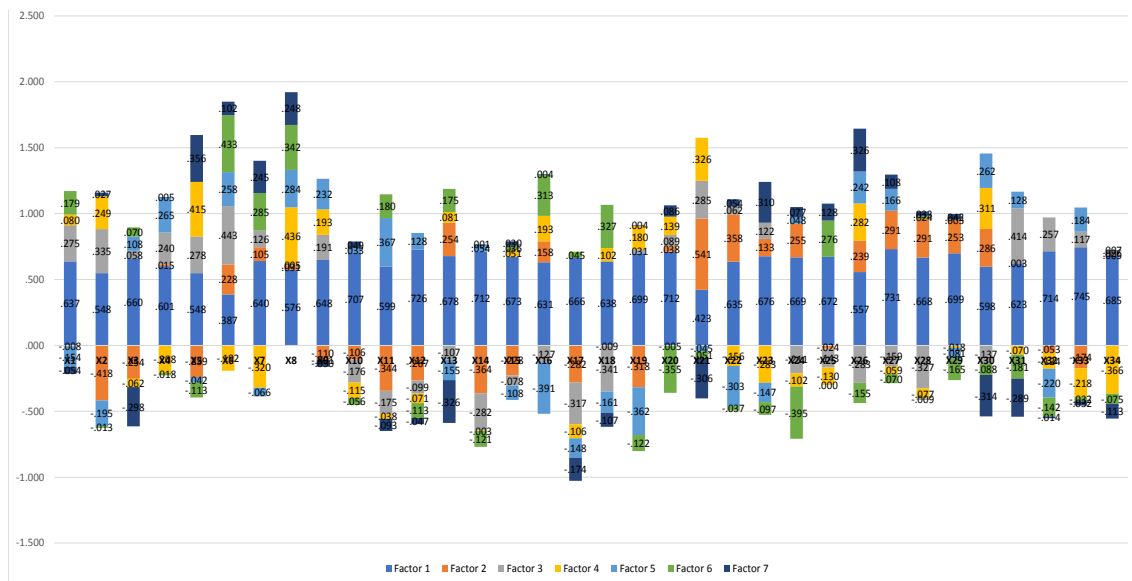


Fig. 1 Component Matrix

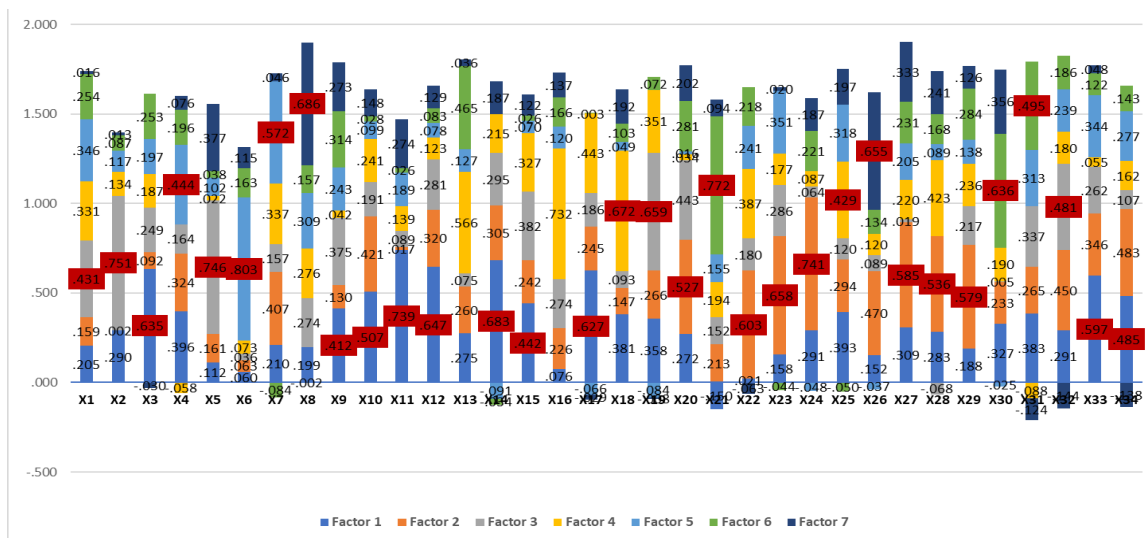


Fig. 2 Factor Rotation

Based on tabel 5, it can be concuded that there are 7 factors that can affect the earning motivation of students in class XI of SMK Negeri 2 Padang Panjang. The factor formation process has a provision that if the eigenvaue number < 1 , it cannot be used as a factor formation. The eigen vaue component of 1 is $14.162 > 1$, then it becomes factor 1 and is abe to expain 41.653% of the variation. The eigen vaue component of 2 is $1.938 > 1$, then it becomes factor 2 and is abe to expain 5.699% of the variation. The eigen vaue component of 3 is $1.632 > 1$, then becomes factor 3 and is abe to expain 4.800% of the variation. The eigen vaue component of 4 is $1.420 > 1$, then it becomes factor 4 and is abe to expain 4.176% of the variation. The eigen vaue component of 5 is $1.251 > 1$, then it becomes factor 5 and is abe to expain 3.679% of the variation. The eigen vaue component of 6 is $1.248 > 1$, then becomes factor 6 and is abe to expain 3.670% of the variation. The eigen vaue component of 7 is $1.055 > 1$, then it becomes factor 7 and is abe to expain 3.102% of the variation. The tota of the 7 factors is abe to expain the variation

(cumuative percentafe of variance) of a data used by 66.779%. whie the rest is influenced by other factors outside this study.

D. Component matrix

Based on Fig.1, the component matrix vaue shows the distribution of the 34 variabes on the 7 factors formed. Whie the numbers in the tabel are oading vaues that show the amount of correation between a variabe and factor 1, factor 2, factor 3, factor 4, factor 5, factor 6 and factor 7.

1) Factor rotation

The purpose of this rotation is to obtain a cearer view of the data reated to the oading vaue of each variabe on the existing factors. The factor rotation method used is the varimax method. Varimax rotation is appied to maximize factor variance, which means trying to make factor oadings cearer by grouping variabes that have a strong relationship with a particular factor. With this rotation, it wi make it easier to interpret the factors ater because the variabes are aready seen to be grouped into which factors [16].

Based on Fig.2, the factors that influence the earning motivation of students in class XI SMKN 2 Padang Panjang are as follows:

a) *Factor 1*

Based on the factor rotation tabel, factor 1 has 10 forming variables. The variables included in *factor* group 1 are Interest (X3) with a *factor loading* value of 0.635, Responsible (X9) with a *factor loading* value of 0.412, Believe in their own abilities (X10) with a *factor loading* value of 0.507, Act independently in making decisions (X11) with a *factor loading* value of 0.739, Having a positive self-concept (X12) with a *factor loading* value of 0.647, How parents educate (X14) with a *factor loading* value of 0.683, Relationships between family members (X15) with a *factor loading* value 0.442, Understanding parents (X17) with a *factor loading* value of 0.627, Exposure to mass media (X33) with a *factor loading* value of 0.597, Forms of community life (X34) with a *loading* value of 0.485.

b) *Factor 2*

Based on the factor rotation tabel, factor 2 has 7 forming variables. The variables included in *factor* group 2 are teacher teaching methods (X20) with a *factor loading* value of 0.527, relations between educators and students (X22) with a *factor loading* value of 0.603, relations between students (X23) with a *factor loading* value of 0.658, school discipline (X24) with a *factor loading* value of 0.741, lesson standards (X27) with a *factor loading* value of 0.585, school building conditions (X28) with a *factor loading* value of 0.563 and earning methods (X29) with a *loading* value of 0.579.

c) *Factor 3*

Based on the factor rotation tabel, factor 3 has 5 forming variables. The variables included in *factor* group 3 are Feeling happy (X1) with a *factor loading* value of 0.431, Attention (X2) with a *factor loading* value of 0.751, Initiative in earning (X5) with a *factor loading* value of 0.746, Cutura background (X19) with a *factor loading* value of 0.659 and Students' friends (X32) with a *factor loading* value of 0.481.

d) *Factor 4*

Based on the factor rotation tabel, factor 4 has 4 forming variables. The variables included in *factor* group 4 are Dare to express opinions (X13) with a *factor loading* value of 0.566, Home atmosphere (X16) with a *factor loading* value of 0.732, Economic conditions (X18) with a *factor loading* value of 0.672 and earning tools (X25) with a *factor loading* value of 0.429.

e) *Factor 5*

Based on the factor rotation tabel, factor 5 has 3 forming variables. The variables included in *factor* group 5 are Involvement (X4) with a *factor loading* value of 0.444, Self-confidence (X6) with a *factor loading* value of 0.803 and Self-control (X7) with a *factor loading* value of 0.572.

f) *Factor 6*

Based on the factor rotation tabel, factor 6 has 3 forming variables. The variables included in *factor* group 6 are Curriculum (X21) with a *factor loading* value of 0.772, Homework (X30) with a *factor loading* value of 0.636 and Student activities in the community (X31) with a *factor loading* value of 0.495.

g) *Factor 7*

Based on the factor rotation tabel, factor 7 has 2 forming variables. The variables included in *factor* group 7 are Problem solving (X8) with a *factor loading* value of 0.686 and School time (X26) with a *factor loading* value of 0.655.

2) *Interpretation of factors*

Factor interpretation aims to name the factors that have been formed. Given that a factor is a construct and a construct becomes meaningful if it can be interpreted. Factor interpretation can be done by knowing the variables that make it up. Interpretation is done by judgment. Because it is subjective, results can be different if done by someone else [17]. From the reduction results, 7 factors are obtained which will be given names where the variables have been grouped into their respective factors. Naming this factor must be based on the characteristics of the variables included in the factor. Because this interpretation process is subjective, this factor interpretation process can be different if done by other people. After the variables are grouped into their respective factors, the next step is to name the factors. The following is the naming of the factors and a description of each factor.

Factor 1, namely self-development and social environment that affects the earning motivation of class XI students of SMK Negeri 2 Padang Panjang by 41.653% (percentage of variance) with an eigenvalue of 14.162. The variables included in this factor are Interest (X3), Responsible (X9), Believe in their own abilities (X10), Act independently in making decisions (X11), Have a positive self-concept (X12), How parents educate (X14), Relationships between family members (X15), Understanding parents (X17), Exposure to mass media (X33) and Forms of community life (X34).

Factor 2, namely the quality of the earning environment that affects the earning motivation of class XI students of SMK Negeri 2 Padang Panjang by 5.699% (percentage of variance) with an eigenvalue of 1.938. The variables included in this factor are teacher teaching methods (X20), relations between educators and students (X22), relations between students (X23), school discipline (X24), lesson standards (X27), school building conditions (X28) and earning methods (X29).

Factor 3, namely emotional and social support in earning that affects the earning motivation of class XI students of SMK Negeri 2 Padang Panjang by 4.800% (percentage of variance) with an eigenvalue of 1.632. The variables included in this factor are Feeling happy (X1), Attention (X2), Initiative in earning (X5), Cutura background (X19) and Students' friends (X32).

Factor 4, namely family support and educational resources that affect the earning motivation of class XI students of SMK Negeri 2 Padang Panjang by 4.176% (percentage of variance) with an eigenvalue of 1.420. The variables included in this factor are daring to express opinions (X13), home atmosphere (X16), economic conditions (X18) and earning tools (X25).

Factor 5, namely independent earning skills that affect the earning motivation of students in class XI SMK Negeri 2 Padang Panjang by 3.679% (percentage of variance) with an eigenvalue of 1.251. The variables included in this factor are Involvement (X4), Self-confidence (X6) and Self-control (X7).

Factor 6, which is an integrated earning experience that affects the earning motivation of class XI students of SMK

Negeri 2 Padang Panjang by 3.670% (percentage of variance) with an eigenvalue of 1.248. The variables included in this factor are Curriculum (X21), Homework (X30) and Student activities in the community (X31).

Factor 7, namey problem solving skills in earning that affect the earning motivation of students in class XI SMK Negeri 2 Padang Panjang by 3.102% (percentage of variance) with an eigenvalue of 1.055. The variables included in this factor are Problem solving (X8) and School time (X26).

E. Discussion

This study aims to determine and analyze the factors that influence the earning motivation of students in class XI of SMK Negeri 2 Padang Panjang by using factor analysis techniques. Previously, Muhammad Zufahmi Nasution also used the factor analysis method to determine the dominant factors affecting student achievement. In his research, Muhammad Zufahmi Nasution reduced 10 variables that allegedly affect the earning achievement of students in grades X and XI of SMK Raksana 2 Medan into 3 main factors, namely factors within the student and the surrounding environment factors and the surrounding environment, supporting factors and additional factors [18].

In addition, previous research by Yoyok Hariyanto entitled "Analysis of Factors Affecting Mathematics Earning Motivation of SMK Avicena Tenjo Students" also analyzed factors that affect earning motivation. Hariyanto's results showed that the motivation of class XII students of SMK Avicena Tenjo in the high motivation category was 48.8%, which was influenced by three main factors, namely teacher follow-up, school environment, and parental support [19]. The similarity with this study is that both analyze the factors that influence earning motivation. However, the difference lies in the analytical method used; Hariyanto's research uses descriptive statistics with logistic ordinal regression, while this study uses factor analysis to determine and analyze the factors that influence the earning motivation of students in class XI of SMK Negeri 2 Padang Panjang.

Based on the results of data analysis from 34 observed variables, 7 factors were obtained that affect the earning motivation of students in class XI of SMKN 2 Padang Panjang. These factors include: first, self-development factors and social environment that affect earning motivation by 41.653% with an eigenvalue of 14.162, which is the dominant factor affecting student earning motivation. Second, the quality of the earning environment influences earning motivation by 5.699% with an eigenvalue of 1.938. Third, emotional and social support factors that affect earning motivation by 4.810% with an eigenvalue of 1.632. Fourth, family support factors and educational resources affect earning motivation by 4.176% with an eigenvalue of 1.420. Fifth, the independent earning skills factor that affects earning motivation by 3.679% with an eigenvalue of 1.251. Sixth, the integrated earning experience factor that affects earning motivation by 3.670% with an eigenvalue of 1.248. Seventh, the problem-solving skills factor in earning that affects earning motivation by 3.012% with an eigenvalue of 1.055.

Overall, these seven factors are able to explain variation (cumulative percentage of variance) of 66.779%. This means that these factors affect students' earning motivation by

66.779%, while the rest is influenced by other factors not included in this study.

IV. CONCLUSION

Based on the results of research using the factor analysis method, of the 34 variables analyzed, 7 factors were obtained that influenced the earning motivation of class XI students of SMKN 2 Padang Panjang. These factors include: Self-development and social environment factors (41.653%) which are the most dominant factors affecting students' earning motivation, the quality of the earning environment (5.699%), emotional and social support (4.800%), family support and educational resources (4.176%), independent earning skills (3.679%), integrated earning experiences (3.670%) and problem solving skills in earning (3.102%). In total, these 7 factors influence students' earning motivation by 66.779% while the rest is influenced by other factors outside this study. The findings emphasize the importance of creating a earning environment that supports earners' persona and social development to increase their earning motivation. The findings can be used as input for earners, parents and schools to maintain and increase earner motivation so that the educational objectives can be achieved. This study only measures internal factors in the form of interest in earning, earning independence and self-confidence while external factors are in the form of family, school and community environments. Therefore, researchers hope that further research will analyze other factors that can affect student motivation.

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