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Profile of Students' Academic Skills on Geometry Problem Using Field Trip Method

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Abstract. The purpose of this research was to describe the profile of students' academic skills on geometry problems in the field trip method. This research was qualitative research. The subjects of this research were the second semester students of the mathematics education study program at STKIP PGRI Nganjuk. The data of this research was the level of students' academic skills. Data was analyzed quantitatively to obtain an overview of the learning process and learning products. The instrument of this research used performance based evaluation sheet and test. The results of this research indicated the percentage of students' academic skills after learning to build space with the field trip method as follows: 70% of students could mention the free variable, 70% of students could mention the dependent variable, 60% of students could mention the control variable, 65% of students could mention the relationship between variables, 60% of students could conclude temporary estimates, 65% of students could practice, 65% of students could analyze data, 65% of students could make conclusions. Students showed a positive attitude and were able to make students have enthusiasm to gain new learning experiences so that the learning became more meaningful.

INTRODUCTION

One of the goals of education is so that humans can solve and overcome various problems in their lives. The effort which made to improve education is to improve the quality of teacher candidates. As prospective mathematics teachers, students of mathematics education study programs have a very difficult task because they must be thoughtful, be creative in solving problems or making problems, innovative, developing abilities in technology so that prospective teachers can improve the quality of learning later [1]. Based on the demands of the task, mathematics education students need to develop their life skills to anticipate the many developments in the future.

Life skills as a result of education is a person's ability to deal with problems without feeling stressed and proactively and creatively can find solutions to these problems [2]. If students have life skills, students can face problems when they become mathematics teachers. In addition, there is a relationship between life skills and a person's level of confidence, in other words, someone who has life skills will increasingly have high self-confidence [3].

Life Skills include skills: (1) personal, (2) social, (3) thinking, (4) academic, and (5) vocational [4]. Whereas in [5] Life Skills consist of General Life Skills, and Specific Life Skills. General Life Skills consist of personal and social skills, while Specific Life Skills consist of academic and vocational skills. So we can say that life skill is one of the keys in the development of education both in the nuances of academic education and vocational education.

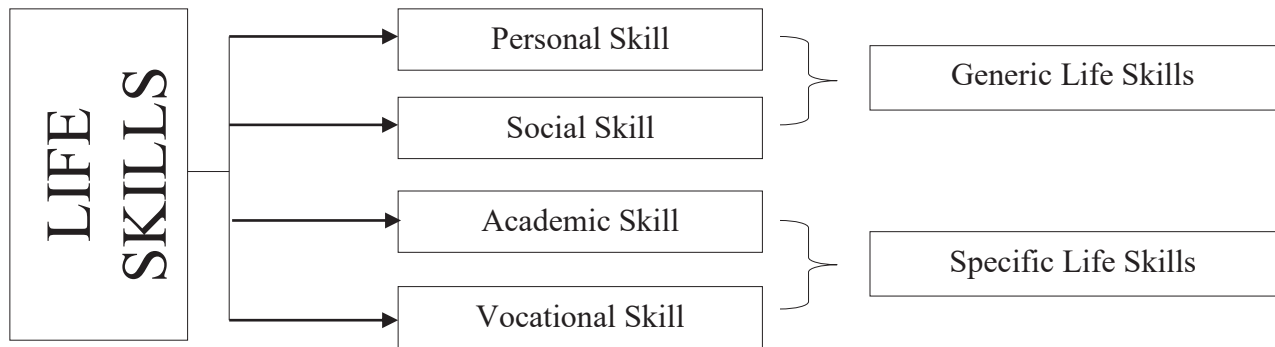


FIGURE 1. Life Skill Concept

This research is limited to academic life skill, because prospective mathematics teachers tend to solve problems scientifically. Academic skill refers to the ability to think scientifically. Academic skill is the ability to think scientifically or thinking skill that lead to scientific activities [6]. Coverage in academic skill include a skill to identify variables and explain the relationships among variables at a particular phenomenon, formulating a hypothesis to a series of events, as well as designing and executing studies to prove the idea of tau curiosity [7].

To get the learning process of mathematics by thinking scientifically, the learning method of field trip was used. Field trip is a trip to the wild. In other words, field trip is real activity that can provide opportunities for trial [8]. According to [9] field trip is a trip with instructions where students interact and gain experience by displaying ideas that connect the material being studied. Based on those statements, it can be concluded that the method is real activity of experiment to find ideas and connect those activities to the material which is being studied. Thus, learning through the method of field trip can include all indicators in academic skill. This research goal is to determine the students' academic skill profile on geometry material in the method of field trip.

RESEARCH METHOD

This research goal is to determine the students' academic skill profile on geometry material in the method of field trip. The research subjects were students of the second semester of mathematics education program at STKIP PGRI Nganjuk. Research data is the level of students' academic skills. Data was analyzed quantitatively to obtain an overview of learning processes and products. The instruments that used in this research were performance based evaluation sheet and test. Types, techniques and instruments for collecting data can be seen in table 1.

TABLE 1. Types, Techniques and Instruments in Collecting Data

Type of Data	Technique of Collecting data	Instrument	Technique of Data Analysis
Level of academic skills	Observation	Performance based evaluation sheet	Descriptive percentage

RESULT AND DISCUSSION

Profile of Students' Academic Skills

The learning activities carried out were to use the field trip method in the geometry subject with geometry. The steps of learning activities using field trip are as follows: (1) Determining the main objectives, (2) exploring all choices, (3) making travel plans, (4) Checking the list, and (5) Class follow-up [10].

Based on the results of observations during learning, the number and percentage of students' academic skill were obtained in cycle 1 as shown in table 2.

TABLE 2. Number and Percentage of students' academic skill on geometry material in the field trip method

No.	Academic skill indicators	True		False	
		Total	%	Total	%
1	Mentioning free variables	14	70	6	30
2	Mentioning the dependent variable	14	70	6	30
3	Mentioning control variables	12	60	8	40
4	Mentioning relationships among variables	13	65	7	35
6	Concluding a temporary guess	12	60	8	40
7	Practice	13	65	7	35
8	Analyzing data	13	65	7	35
9	Making conclusions	13	65	7	35

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Life skills are skills or abilities that a person needs to face and live in a real life. These skills provide great benefits to overcome various life problems. Life skills that somebody has are influenced by many factors such as internal factors and external factors. External factors such as the understanding of a lecturer about learning that is oriented to life skills, the implementation of life skill oriented learning, facilities and infrastructures of learning. The principle of learning life skills leads to contextual learning so that learning using the field trip method can be used to explore or to observe life skills possessed by students.

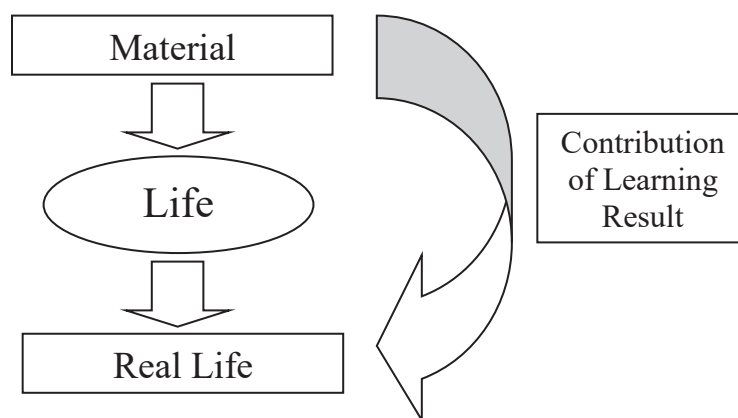


FIGURE 2. Life Skill Principles

Limit of this research was only academic skills due to the subjects of the research were students of mathematics education study programs tend to think scientifically to solve existing problems. Academic skills consist of skills for identifying variables and explaining the relationship of variables to a particular phenomenon, formulating hypotheses against a series of events, and designing and implementing research to prove ideas a tau curiosity.

Learning was done with geometry, the position of points in space and distance of two points. Learning was carried out using the method of field trip, trips to the Nganjuk town square and Anjuk Ladang Recreational Park (TRAL).

Observation result by filling Performance Based Evaluation Sheet was that students got an average academic skill score of 65 %. It meant that students had sufficient levels of academic skills. Based on this result, it showed that students could master concepts and solve problems effectively and efficiently using field trip method. This is in accordance with the opinion [11].

Academic skills have several aspects including the aspect of identifying variables and connecting between variables, aspects of formulating temporary guesses, aspects of carrying out activities. The percentage of each aspect is 66.25% for aspects of variable identification and connecting between variables, 60 % is for aspects of formulating temporary guesses and 65% is for aspects of implementing activities. Based on the percentage of aspects of the academic skills, students were in a fairly good category in every aspect. Through the field trip

method, students get the first hand experience so that students can identify variables and their relationships, form temporary guesses and carry out activities well. It is in accordance with the opinion [11] that the good thing of field trip method is that students get experience directly on the field, increase their interest to collect data, material or object and observe objects or phenomena that may not be brought into the classroom.

Student Response to Field Trip Learning

Data of student response to field trip learning on geometry problem got from questionnaire given to students after learning activities are finished. The result of the questionnaire analysis can be seen from figure 3.

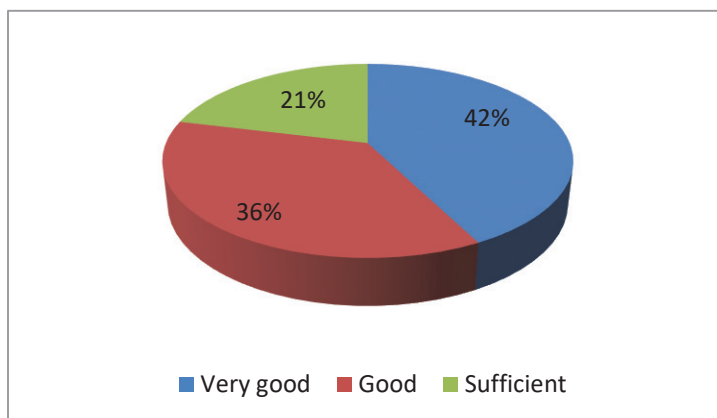


FIGURE 3. Student Response To Field Trip Learning

The average value of a student's life skill is 65 with a sufficient category. Based on questionnaire data about field trip learning, the number of students who responded to field trip learning very well was 42%. Students who responded very well were students who felt happy and enthusiastic about learning outside the classroom. By studying outside the classroom, students better understand the material provided and can solve problems easily.

The number of students who responded well was 36%. This student believes that students feel more guided by the instructions given in learning. Thus students feel happy with learning that leads to academic skills. While the number of students who responded sufficiently to field trip learning was 21%. This is evident from when the learning process took place only a few students who lack enthusiasm and tend to be less active because of a lack of interest in participating in learning activities, so that the questionnaire statement that has the smallest number of values that students find it difficult to find and understand their own geometry problems through learning field trips. Based on the results of a questionnaire analysis of student responses to the field trip learning given after the learning process took place, it was concluded that the students showed a positive attitude and were able to make students have enthusiasm to gain new learning experiences so that the learning became more meaningful.

CONCLUSION

Based on the results of research on students' academic skill profile on geometry material in method of field trip that it was included in the sufficient category with an average value of 65 which consists of several indicators namely students could mention the independent variable, 70% of students could mention the dependent variable, 60% of students could mention control variable, 65% of students could mention the relationship between variables, 60% of students could conclude temporary estimates, 65% of students could practice, 65% of students could analyze data, 65% of students could make conclusions. Students showed a positive attitude and were able to make students have enthusiasm to gain new learning experiences so that the learning became more meaningful.

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REFERENCES

1. B. Murtiyasa. *Utilization of Information and Communication Technology to improve the Quality of Mathematics Learning*. (FKIP Univ. Muhammadiyah Surakarta , Surakarta, 2012)
2. M. Supriatna. *Life skills development in schools*. (UPI, Bandung, 2007)
3. Khera, S. & Khosla, S. A Study of the Core Life Skills of Adolescents in their Self Concept Developed Through the YUVA School Life Skill Program. IRJC, *International Journal of Social Science & Interdisciplinary Research*, **1** (November 2012)
4. Broad Based Education Team. 2002. *The concept of Life Skills-Oriented Education*. Book 1. (Ministry of National Education, Jakarta, 2002)
5. Campbell Linda, Campbell Bruce, and Campbell Dee. *Practical Methods of Learning based on Mutiple Intelligences*. (IntuisiPress,Jakarta 2007).
6. Curriculum, P., Ministry of National Education, B., & No, JGSR. Development of Life Skills Education Model. 2012
7. Anwar. *Life Skills Education*. (Alfabeta, Bandung, 2014)
8. Susiwi. *Life Skills*. (UPI, Bandung 2007).
9. B. Marc & Franklin, A, Teresa. A Review of Research on School Field Trips and Their Value in Education, *Journal*. (2014)
10. BJ, Sanders. The Best Field Trip Ever. On line.(2008)
11. AG, Ogunlade, OO, & Atobatele Amosa, "Effect of field trip on student academic performance in Ilorin Metropolis," *Malaysian Online Journal of Educational Technology*, 1-6 (2015)