

Self-Efficacy in Scientific Literacy Student Ability Based on Gender

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Abstract: The purpose of science education is to develop the concept of knowledge and understanding that is useful and can be applied in everyday life. Self-efficacy or confidence in the ability of self to be one factor in the success of learning, especially in this study focused on science literacy skills of learners. In this study, self-efficacy seen by sex learners. Subjects were a student of IV class with the number of learners 10 male and 10 female learners in SD Islam Diponegoro Surakarta. Collecting data using the results of the fourth-grade science learning outcomes and self-efficacy questionnaire. Analysis of data reduction, presentation, and verification of data. The results showed that the behavior of young learners have more self-efficacy levels were higher than female learners. Also demonstrated that the value of learning outcomes learners science/IPA (indonesian language) male is superior to female learners.

Keywords: self-efficacy, science, gender

INTRODUCTION

Science education is one aspect that is used to achieve educational goals. Learning science was first taught to learners primary school level. Science learning experience, and a stock of knowledge, concepts, and skills of science as the basis for students to face everyday life associated with good science. Scientific literacy is a capability that is helping learners in understanding scientific phenomena that occur in everyday life. The concept of scientific literacy capable of providing a high sense of awareness of self and environment in the face of everyday life and can make decisions based on the scientific knowledge that has been incorporated (Sholihin, 2016: 68).

Genci (2015: 143) found "Scientific literacy is the ability to live satisfyingly in harmony with the cultural environment.", Which means that scientific literacy is the ability to live satisfactorily in harmony with the cultural environment. Meanwhile, Clark (2010: 316) explains that "scientific literacy is a fundamentally important prerequisite for decision making in this global age, particularly subject when it comes to decisions that affect our health, environment, technological advancement, and community development", which means that scientific literacy is a fundamental prerequisite that is important for decision-making in this global era, especially when it comes to decisions that affect the health, environmental, technological advances, and community development.

The results of the Program for International Student Assessment (PISA) in 2012 shows a situation where science education in Indonesia is not adequately prepared students to compete with students in other countries. Ranked Indonesia is in a position 64 of the 65 countries. This result is seen that the literacy skills of elementary school students' science in Indonesia are still very low. Additionally, observations and interview some of the schools in Surakarta shows that the level of scientific literacy of primary school students can be said are still low. This statement can be proved from the average value of science subjects, among learners female and male

learners. Results of studying science subjects showed men reaching an average of 86.65, while the average learning outcomes science female learners reach 82.75.

Self-efficacy became one of the factors in giving effect to successful learning, especially at this research that the level of students' science literacy skills. Self-efficacy can be implanted on learning, one science teaching. Samatowa (2010: 10) argues that science learning is learning that provides opportunities for children to develop the capacity to think in explaining a problem. Their activities to develop the ability to think and solve problems are expected to be active learners during the learning process and create growth in the level of self-efficacy. While Susanto (2013: 170) argues that science learning is learning based on the principles and processes that can foster a scientific attitude of students towards scientific concepts. In this case,

Bandura (1997) in Setiawan (2014: 236) explains that self-efficacy is the belief that a person of his ability to accomplish specific tasks. Bandura reiterated that "self-efficacy is a person's belief in his ability to do some controls over one's own functioning and events in the neighborhood" which means that self-efficacy is the belief of the individual/person to the ability he had to do some control on one's functions and events in the environment (Feist & Feist 2011: 212). The opinion was in line with the Pajares (Hairida, 2017: 54) that self-efficacy is a person's belief in their ability to be able to successfully reach the goal.

Self-efficacy is a personal factor affecting the behavior of individuals through action, effort, and persistence. in an educational context. self-efficacy students need to get attention from the teacher so that the potential of learners can be optimized well, then learners with high self-efficacy will be motivated in achieving the learning objectives. As stated by Schunk (1990) in (Hairida, 2017: 54) that learners with a level of self-efficacy to make him come out of the disturbances in the learning process so that learning becomes effective. Therefore, in this study, the author will focus its research on the discussion related to the ability level of scientific literacy of learners in terms of self-efficacy. Previous,

Three-dimensional self-efficacy were noted by Bandura (Rahman, 2013: 3) include:

- a. The level of difficulty of the task (magnitude)

Magnitude dimension is the dimension that relates to the degree of difficulty faced by individuals. Each has a different yan ability to accomplish certain tasks.

- b. strength of conviction (strength)

The strong confidence level will provide encouragement and motivation of individuals to survive to achieve success, whereas individuals with a level of confidence that a weak/low it will be easily deterred in his efforts.

- c. generalization (generalization)

Dimensional generalization associated with behavior in the field will be its ability to achieve success. This happens on the individual's belief in his ability in activities, situations, and activities

Bandura (1997: 213) Self-efficacy said that students can be influenced by several factors, one of which is sex (gender) (Safitri, 2019: 34). This was confirmed by Meece & Scantlebury who argue that some experts believe that gender differences by gender in mathematics and science, it is because of the experience that boys and girls experience (Santrock, 2011: 223). Smerdon research results show that boys get more superior than girls in science test results at the level of secondary school (Santrock, 2011: 223). However, in contrast to the results of research Safitri (2019: 39) which shows that there is no significant difference between the level of self-efficacy of male and female students with the results of learning science

class VII at junior high school, these results are still at the level of correlation with the category low.

Based on research results from some researchers that shows the differences in the results of research related to the level of self-efficacy seen from the gender of learners with learning outcomes of students in learning science, the authors are interested in researching the subject of primary school learners. This research is very necessary to do to identify and assess the level of self-efficacy among female learners and learners male with the literacy skills of science, this may be one way to evaluate the science education in school, especially science education Indonesia, for more attention These internal factors of learners one of them self-efficacy is a factor of learning. Therefore,

METHOD

Research design

The research design used in this research is descriptive qualitative research method, which aims to describe carefully and systematically about particular facts and nature of the subject. Mahmud (2011) explains that qualitative research is research that emphasizes analysis of the process of deductive and inductive inference and the analysis of the dynamics of the relationship between the observed phenomena, using scientific logic

Subjects and Research Instruments

These research subjects are 20 learners Islam Diponegoro IV class academic year 2019/2010. This amount is enough for the researchers conducted in-depth qualitative descriptive research through data collection using data triangulation method. Data collection will be conducted by researchers through the value of science learning outcomes and results of self-efficacy questionnaire. The research instrument used in this study were self-efficacy questionnaire with statement number 25 section. Here grating self-efficacy questionnaire-based indicator.

Table 1. Lattice self-efficacy questionnaire

Dimension	Indicator	No statement		Total
		Positive	Negative	
<i>magnitude</i>	Learners have a positive view of the task at hand	1,2,	3	3
	Learners have confidence in its ability to overcome obstacles in the level of difficulty of the task facing	4,5,	6	3
	Learners have confidence in the ability to take the necessary measures to achieve the objectives	7,8,	9	3
<i>strength</i>	Learners use the experience of living as a step to achieve success	10	11	2
	Learners display an attitude that shows confidence in the whole process of learning	12	13	2
	Learners can address the diverse circumstances with a positive attitude	14,15	16	3

Dimension	Indicator	No statement		Total
		Positive	Negative	
<i>generality</i>	Learners have strong confidence in the potential itself in completing the task	17,18	19	2
	Learners commit to complete academic assignments well	20,21	22	3
	Learners have a fighting spirit and not give up when experiencing barriers to completing the task	23,24	25	3
Total		25		

Research procedure

The research was done by spreading the instruments of self-efficacy 20 students (10 male and 10 female) Islam Diponegoro fourth grade. The results of daily tests of fourth grade science made on average between the results of the UH women and men.

Broadly speaking, the stages of this study can be described as follows:

1. Designing a research instrument of (self-efficacy questionnaire)
2. Data collection, including (1) the results of the value of learning outcomes science (2) self-efficacy distributing questionnaires to students in grade IV
3. Analysis of the data by reducing the results of the various ways of collecting data
4. Prepare reports on research results. The expected result is to know the differences in levels of self-efficacy of students between men and women by looking at the learning outcomes SCIENCE.

Data analysis

Analysis of the data used in this study is an analysis of field data model of Miles and Huberman which is divided into several steps, namely the reduction of the data (data reduction), presentation of data (data display) and verification (conclusion drawing). This research was conducted at Diponegoro Islamic Elementary School. Looking at the results of the learning outcomes science IV class and see the results of the instrument questionnaire self-efficacy to classify the level of self-efficacy between men and women. The data were analyzed calculating the percentage of the value of learning outcomes science, this calculation is assisted by the program Microsoft Office Excel. The percentage of achievement of learning outcomes science value learners are interpreted descriptively based on student learning outcomes expressed by Arikunto (2013) as follows:

Table 2. Criteria for student learning outcomes

Value	Criteria
80-100	Very good
66-79	Well
56-65	Enough
40-55	Not good
50-39	Very poor

The classification level of self-efficacy of students can be seen from the scores of self-efficacy questionnaire results, the following categories of the level of self-efficacy:

Table 3. Criteria Self-efficacy

No.	Criteria	Score
1	Low	Score <25%
2	moderate	25% > score <50%
3	High	Score > 50%

RESULTS AND DISCUSSION

The results showed that the level of self-efficacy male learners are superior in each of the indicators of self-efficacy, which includes a magnitude (62.78%), strength (44.1) and generality (60.2%). Table 4 shows a comparison of the level of self-efficacy in each dimension between learners male and female learners. On the table can be also found that of the three dimensions of self-efficacy, the magnitude of the highest dimension acquired by learners male with a score of 62.78%. It has also been experienced by the score has been achieved by learners women, namely 61, 39% were both in the dimensions of the high category.

Bandura (1997: 42-46) explains that the concept of the dimension of this magnitude lies in the individual's belief in her ability to the level of difficulty of the task. Self-Efficacy is a factor / psychological aspects that influence the success of students in solving a problem one of them is a job well done (Jatisunda, 2017: 25). The level of self-efficacy male learners are superior to women, in fact, proved the value of learning outcomes are also superior science learners male than female learners, these results can be seen in Table 5.

Table 4. The level of self-efficacy learners

No.	Dimensions of Self-efficacy	Learners			
		Male		Female	
		%	criteria	%	criteria
1	Magnitude a. Having a positive and optimistic outlook b. Mengatasu barriers have confidence in the level of difficulty c. Having confidence in the ability to take action	62.78	High	61.39	High
2	Strength a. Using the experience of living as a step to achieve success b. Display an attitude that shows confidence in the whole process of learning c. Being able to address the diverse circumstances with a positive attitude	44.1	moderate	35.83	moderate
3	Generality a. Has a strong self-belief against her potential in completing the task b. Committing to complete the task c. Has a fighting spirit and did not easily give up	60.2	High	55	High

Dimensi strength into a dimension that has the lowest level. Dimensions strength between learners of men and women have the lowest score among the three dimensions, namely 44.1% (male) and 35.83% (female) with considerable differences in scores among other things, which is about 8.25 %. Dimensions of strength include the degree of stability of the individual against his conviction, consistency is what determines the resilience and tenacity of individuals (Bandura, 1997: 42-46). It can be seen also in Table 5, which shows that learning outcomes science male learners who are also superior to the value of female learners to learn science. Although the difference between the two is not too far away, basically between self-efficacy of students male and female is not too far away, where three-dimensional self-efficacy has the same category. Dimensions magnitude of learners male and female in the high category, dimensions, and strength in the category generality dimension in the high category as well.

Results learners to learn science between men and women do not have significant differences, probably due to the dimensions of strength, there are indicators to show the attitude which showed confidence throughout the learning process. it is as mentioned Bandura (2002) (Ifdil, et al., 2016) that individuals who have high levels of self-efficacy of high academic will have the attitude of one of them is to push yourself to look for positive efforts to improve achievement and personal well-being. While the results of this study indicate both the learner only has dimensions of strength in the medium category. Where one of the indicators to show the attitude of self-confidence can be created through the efforts of pushing ourselves to improve performance.

Table 5. Value Data of Science Learning Outcomes

Average results learn science	
Learners	
Man	Woman
85.95	82.75

Dimensions generality becomes the second level after a magnitude dimension for learners male and female, with a score of 60.2% (males) and 55% (female). In this dimension refers to the situation where the variation of self-efficacy assessment can be applied. On the dimension of generality, some indicators show (a) has a strong self-belief against her potential in completing the task (b) a commitment to complete the task (c) has a fighting spirit and did not easily give up. So of the three indicators, can be done either because the motivation of learners to complete the task. This is by the opinion of Park and Kim (2006) in (Somawati, 2018: 40) explained that academic self-efficacy is very important for students to control motivation to achieve academic expectations

CONCLUSION

From research conducted, there are no significant differences between the scores level of self-efficacy and value of science learners male and female. But from the score indicated it can be concluded that self-efficacy male learners are superior to the female learners. With this level of self-efficacy male learners who excel it can be proved also that science literacy skills of learners male were seen from the results of learning science is also better than female learners. did not show a significant difference.

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