

Analysis of the ability of students' communication skills and self-efficacy on science instruction

A F R A Ichsan¹, R Adawiyah¹ and I Wilujeng¹

¹Science Education, Universitas Negeri Yogyakarta, Sleman, Indonesia

Corresponding author: fadhilla.alichsan@yahoo.co.id

Abstract. This study aims to determine the relationship between communication skills and students' self-confidence based on personal self-perspective related aspects of skills, changes in educational trends, and knowledge. This study uses survey research with a questionnaire instrument in gathering data. The sample uses random sampling, which is class VII students of 32 people. The questionnaire used in the study had a Sig. <0.05 which is 0.01. Based on research data, it is known that there is a positive relationship between communication skills and students' self-efficacy in learning science of students of SMP N 1 Banguntapan-Yogyakarta.

Keywords: *communication skills, self-efficacy, science learning*

1. Introduction

Natural science is the science that discusses the natural facts conveyed by living beings and non-confronting creatures or the science of life and science about the physical world. Science knowledge is acquired and developed based on a series of research conducted by scientists in searching for answers. Science learning emphasizes the provision of direct experience to develop competencies so that students are able to explore and understand the natural environment scientifically. Education is directed to find out and do something that can help students to gain a deeper understanding of the natural surroundings. [1]. 21st Century skills enhance the understanding of students who can apply technology through the era of digital literacy, critical and creative understanding of students and can have good interpersonal skills and social attitudes.[2] In 21st century skills helping students learn and change can happen at any time. 21st Century skills emphasize important assistance in training and life skills, which require skill support and support, self-direction and competition, ability and accountability, cross-cultural and social skills, as well as responsibility and leadership [3].

Communication skills in the 21st century are very important. Communication skills cannot be separated from the speaking and listening skills that are part of language literacy. Meanwhile, information literacy is useful for individuals to choose the right information to be used as a topic of conversation. Language literacy and information literacy are very important to be mastered by students in the 21st century they are required to be proficient in communication.

The statement was submitted by the opinion of Purvis which explains one of the efforts to reduce the difficulty of students communicating, namely by developing literacy in students. Furthermore, the results of Purvis research at New Zealand University found that about 67% of students have low literacy [4].



The next topic is science communication skills. According to Chruchman mentioned that Communication is basically a way to exchange ideas with another person. This can be done by speaking, by gesture and body language, by pictures, by manipulating objects, by using symbols, or through writing. "Chruchman's statement can be interpreted that communication is basically a way to change ideas and the results of thoughts with people other. Communication can be done by talking, through body language, pictures, manipulating objects, symbols, or writing [5].

Communication can be understood as a process of sending information and understanding together from one person to another [6]. Communication can be understood as the process of sending information and mutual understanding from one person to another. Effective communication is a two-way process that requires effort and skill by the sender and receiver. the director will sometimes take each of these roles in the communication process. in communication must provide a good basis for developing and maintaining a set of effective interpersonal communication skills, which can be used by school administrators when communicating with various school stakeholders.

There are several factors that influence communication, namely language, emotions, anxiety, fear, differences in understanding, levels of information exceeding the limit, and gender differences [7]. In line with Göksoy in his research shows that psychological conditions, such as stress, lack of confidence, shame, fear, and joy can be obstacles in communication [8]. Speaking and listening skills are important components for achieving appropriate and effective communication skills [9].

Students must engage in reflection about why and how they should communicate well this is important. Students must be able to think of ways of communicating that are similar / different from scientific communication, and students are also directly involved in joint discussions relating to the extent to which understanding of communication has been previously understood as part of scientific and constitutive inquiry. This needs to be applied directly at various levels of reflectivity and complexity tailored to the abilities and ages of students [10]. The interesting thing is that science as an early form of communication began with the emergence of popular science and research on communication. The emergence of epistemological perspectives on science is often at odds with ideology, experience, and practice in communicating science. Science which has only been described as knowledge and methods while for the delivery of science is only limited to explaining scientific knowledge in everyday language.

Besides research on student communication skills, there is also research on the effect of student confidence on learning achievement. In addition, self-confidence supports the person, if developed, self-confidence will begin to grow on its own. A study of the effect of student confidence on learning achievement. The results of the study concluded that the learning confidence variable has been proven significant and has an influence on learning achievement [11].

This is supported by the statement that self-efficacy has a strong influence on learning, motivation, and performance, because with self-efficacy a person will try to try to learn and perform tasks that they believe will be successful [12].

That way there will be a process of change in students not only on learning outcomes but also on student behavior and attitudes, namely the courage, liveliness, and self-actualization of students during the learning process [13]. Self-confidence is the key to a successful and happy life. A person cannot live life well without confidence and self-confidence is needed in everything. Someone's confidence in the abilities and skills they have in achieving a certain goal and can get positive results is called self-efficacy abilities. Students are required to have the ability of self-efficacy, because it can help students in overcoming all the problems they face. Self-efficacy can also reduce the level of individual anxiety such as when the individual engages himself more in an activity [14]. In fact, learning in schools is often dominated by teachers rather than students, so that only communication patterns take place one-way from teacher to student. The results of preliminary observations through direct observation of science learning activities in class VII in SMP 1 Banguntapan indicate that during learning the teacher lectures for more than one hour of learning. Teachers who are more actively communicating through the lecture method result in students tending to be quiet and focused on the teacher's explanation. In addition, there are only two to four students who ask questions or respond to teachers. This shows that learning activities

in class VII are less effective because passive students and communication in learning are more dominated by teachers.

A good level of confidence makes it easy to make decisions and launches to make friends, build relationships, and help maintain success at work. This opinion is also supported by those who say that "confidence isn't about taking over the world; it is about enjoying your world as much as possible. It doesn't take much, and you do have it in your heart and soul, so take a little time and look for it. I think you will be more than pleased with yourself with what you find [15]. That confidence does not mean more force in the world; it's about enjoying one's world as much as possible. That does not mean overdoing it, and doing it inside and outside the heart, so little time to find it. I think you will be more pleased with yourself about what you find. If the statement is scrutinized it will contain a message that self-confidence will arise as the person can enjoy his life without overdoing it [16]. That is in addition to a negative self-concept, self-confidence also affects one's interpersonal communication. In this case, self-confidence is included in individual self-concepts that affect students' interpersonal communication [17]. In line with Amilia in her research explained that trust in communicating with students can be influenced by several factors including the environment, habits, thought patterns, insights, gender. Many factors that support the formation of confidence are students will have good self-confidence if in terms of internal (mindset, insight) and external (environment) provide good support [18].

Based on the description, a study was conducted aimed at finding out the relationship of communication skills with students' self-confidence in learning science in class VII, knowing the dominance of scientific communication in learning science in class VII, and knowing the obstacles of scientific communication of students in learning science.

2. Research method

This research uses survey research. The method used in research is a quantitative descriptive research method. The sample uses random sampling, which is class VII students of 32 people.

Data were collected using a questionnaire consisting of 2 parts presented in table 1. below:

Table 1. Questionnaire component.

Part	Number of Items	Type	Description
I	35	Skala Likert	Aspects of communication skills
II	40	Skala Likert	Confidence statement

From a total of 33 randomly distributed questionnaires, 32 questionnaires can be processed (98% return scale). The research subjects were students of class VII of Natural Sciences in SMP 1 Banguntapan in the odd semester 2018/2019 academic year. The technique of taking research subjects is done by purposive sampling on the basis of certain considerations or conditions. The sample is chosen based on the consideration of the teacher. The teacher's consideration is in the form of approval from the teacher who is willing to cooperate in research and considers the time of teaching and learning activities to avoid a time conflicts technique data collection conducted in this study was a questionnaire given once. Data collection to measure communication skills and students' confidence towards science learning. The instrument is used to obtain data that is used to answer research.

Table 2. Communication skills questionnaire grid.

Aspect	Indicator
Verbal communication skills	Convey information ideas, questions, opinions clearly and easily understood Fluency in conveying information, ideas, questions and opinions.
Non-verbal communication skills	Demonstrates confidence in communicating, body language that is good with the right body

Decline in communication	gestures and eye contact with communication opponents and using the right communication tools. Convey information, ideas, questions and opinions coherently
Attitude in communicating	Communicate politely while listening or speaking and applying politeness norms according to place and environment

In addition, the confidence questionnaire grid used in this study is presented in Table 3.

Table 3. Questionnaire grill confidence.

Aspect	indicator
Level	Confidence in the strategy used Confidence in various levels of difficulty Confidence in the whole learning process
Generality	Confidence in dealing with diverse conditions and situations Doing something is never covered by fear and shame
Strength	Confidence in the work done Confidence gets good results

Data analysis technique correlation test data correlation test is a test that is intended to test the presence or absence of a relationship between two or more dependent variables. The size of the relationship between the two variables is stated in the correlation coefficient value between -1 to 1. If the correlation coefficient is -1 and 1 then it has a perfect relationship. If the coefficient is 0 or close to 0, then the two tested do not have a relationship. Provisions for correlation testing can be seen from significance value, if the significance value > 0.05 means there is a significant relationship and if < 0.05 means there is no significant relationship.

Before analyzing data with a qualitative approach, the study conducted an analysis with a quantitative approach, namely in order to know the relationship between communication skills and students' self-confidence. The steps taken in analyzing the data in this study, namely first collecting and formulating all data obtained while in the field, by examining the results of the questionnaire communication skills and self-confidence Next, analyzing the results of the questionnaire and tests based on the indicators set. Grouping the scores obtained according to criteria using a scale of four.

Second, analyzing more descriptively. Questionnaire data analysis was conducted to find out the communication skills of students towards science learning and to see whether there was a relationship between communication skills and self-confidence.

Third, drawing conclusions with a qualitative approach. Qualitative analysis is used to obtain descriptive information and to describe the relationship between communication skills and confidence, so that it is easier to interpret.

3. Results and Discussion

In this study, researchers collected information based on research results obtained from the communication skills questionnaire. researchers used instruments that have represented several aspects of communication skills possessed by students, in this aspect can be seen and measured the level of student communication skills and confidence. The description will focus on the relationship of communication skills and confidence. The communication skills and confidence questionnaire given to students consisted of 35 and 40 items with each item having a score of 1-4.

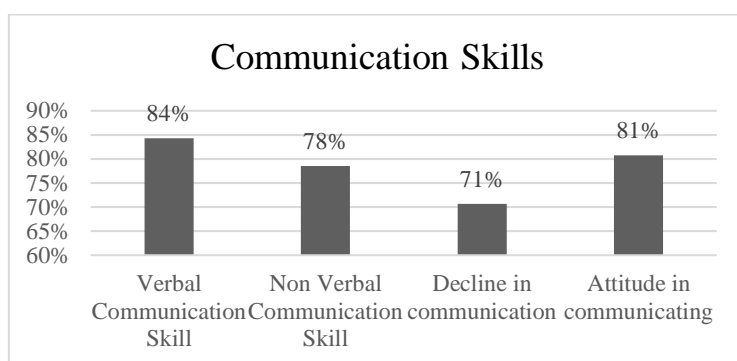


Figure 1. Result of communication skills.

Figure 1 is the average yield of each aspect of communication skills. For the Aspects of Verbal Communication Skills generated 84%. The Non-Verbal Communication Skills aspect yields 78%. The aspect of communication decline resulted in 71%, and the last aspect of attitude in communication resulted in 81%.

In addition to analyzing students' communication skills, this study also aims to analyze how the confident attitude possessed by students in the learning process. Assessment of students' confidence is done at the meeting with the observer.

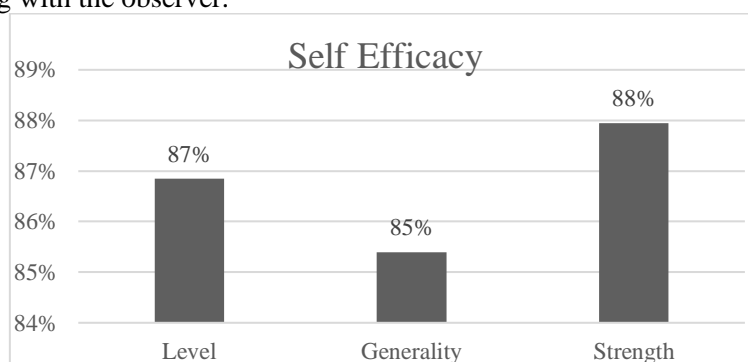


Figure 2 Result of self-efficacy.

Figure 2 outlines the average results for each aspect of self-confidence. For aspects of the level produced 87%. For the aspect of Generality generated 85%. For the Strength aspect, this yields 88%. To find out if there is a relationship between communication skills and self-efficacy, a correlation test was performed. The results of the assessment of communication skills and student confidence gained in learning activities are presented using SPSS 21.0 program assistance.

Table 4. Correlation.

		Communication	Self-efficacy
Communication	Pearson Correlation	1	,780
	Sig. (2-tailed)		.000
	N	32	32
Self-efficacy	Pearson Correlation	,780	1
	Sig. 2 (2-tailed)	,000	
	N	32	32

** Correlation is significant at the 0,01 level (2-tailed).

Judging from the results of the above output, it can be said that natural science learning is correlated with communication skills and students' self-confidence shown by the Sig. <0.05 which is 0.01. The value of Pearson Correlation between variables has an asterisk which means there is a significant

correlation. The results of this study indicate that there is a significant relationship between communication skills and students' self-confidence. When they have to present the results of the lessons they have learned, students usually have to really master the material that they will explain in front of other students, who are usually able to make students feel nervous and anxious. This is due to the low level of self-confidence in students, lack of confidence means also doubting one's ability, and this is clearly a seed of tension, especially when facing matches against players whose strength is balanced, so the tension when competing is a seed defeat. lack of confidence will not support the achievement of high achievement.

Based on the explanation above, it can be concluded that the attitude of confidence and communication skills is a form of confidence to do something about yourself to interact and relationships with others, one of which is by communicating with others. Confidence in the ability to interact with others including when issuing opinions, discussing, and being able to share information with others without fear, shame, hesitation and nervous feelings. This is in line with the results of research conducted by Amilia that there is a significant relationship between confidence in communicating with students' interpersonal communication [16].

Previous research by Marfiyanti examined the relationship of self-confidence with the effectiveness of communication in young couples. Based on the results of his research he concluded that the higher the confidence the higher the effectiveness of individual communication. Research with a subject of as many as 40 people with high school education until S1 is found to be a fact that the factor of trust in personal ability is the most influential factor on self-confidence than other factors. This is because someone who believes in his abilities or in other words has a positive belief will be more confident, so he will have the courage to communicate and be more open with his partner.

4. Conclusion

Facing the demands of the 21st century in the world of education requires teacher's efforts in creating learning that can improve skills and self-confidence in students one of the 21st century skills is communication. To increase the effectiveness of communication, the teacher must develop awareness of the importance of the responsibilities of the sender and receiver and be able to respond actively to the speaker. In addition, an important part of education is the attitude of confidence, when students have a confident attitude in the learning process, namely the emergence of students' courage to appear in front of the class, to present the results of information they know by using each sentence. Teachers should already have a variety of ways that need to be trained on students, and teachers must be able to foster an attitude of confidence in students. When students have the ability to communicate well then, participants who directly help students to have self-efficacy in learning.

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