The Profile of the Scientific Communication of the Seventh-Grade Students

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Abstract. Scientific communication plays a role in delivering concepts, ideas, opinions, the process of an activity, results, conclusions, and recommendations from the source of information to the recipient. This communication is needed by the graduates from the educational unit. Thus, the government also includes this competence as one of the graduate competency standards. This study aimed to determine the profile of the scientific communication of the 7th grade students of junior high schools (SMP). The type of this research is qualitative research. The data were collected using questionnaires. The results showed that there were 8 students with excellent category, 5 students with good category, and 19 students with adequate category of scientific communication. This research can be used as a reference by the teacher to find out the profile of the scientific communication so that efforts can be made to improve scientific communication if it is still low.

Keywords: qualitative, scientific communication, seventh grade, junior high school

1. Introduction

According to Stoner, communication is a process where someone tries to give understanding by transferring messages. Communication is basically done orally or verbally which can be understood by both parties. However, if oral verbal communication cannot take place, written verbal communication can be carried out by both parties in order for mutual understanding. Communication aims to convey the information from the communicator that can be understood by the communicant so that there is a process of mutual understanding, accepting one’s opinion, and asking others to do something. The role of the teacher as a motivator, facilitator, innovator, mentor, and educator requires communication as a tool [1].

The report on the Careers in Science & Engineering identifies the non-technical skills/abilities that are important to "survival" including: teaching, writing, mentoring, teamwork, and leadership. All of these skills are the forms of scientific communication. Scientific communication plays a role in delivering thoughts, ideas, opinions, the process of an activity, results, conclusions and
recommendations from the source of information to the recipient. This communication is needed by the graduates of the education unit that the government also includes this competence as one of the graduate competency standards. Curriculum 2013 based on Permendikbud no. 22 concerning content standards clearly reveals that the student competence in learning science is "To communicate the results of observations and experiments orally through various media and in writing in the form of reports using the correct writing rules". It is through scientific communication that students communicate scientific knowledge from the "findings and studies" to various target groups for various purposes [1].

The rapid development of Science is apparently not balanced with scientific communication skills. Based on the observation made on the 7th grade students, their scientific communication in science was considered to be still low. It could be seen from the activities of the students during learning. The students’ activities were limited to listening and writing what was on the board. These limited students’ activities will lead to the low scientific communication activities. Many of them also did not do any activities during teaching and learning activities. They also did not really listen to the material presented by the teacher. This could be seen from the attitude of sitting uncomfortably and often observing around the room. The problem faced by the students is still the low level of scientific communication. The teacher is an essential factor in the implementation of the curriculum. Therefore, it is very important to find out the profile of the students' scientific communication so that efforts can be made to improve their scientific communication if it is still low. From this research, it is expected that the teachers can understand the use of learning resources that have been provided and other sources that they can use to further enhance their students' scientific communication [2].

2. Research Method
This research was conducted in one of the junior high schools in Surakarta. The subjects of this research were the students of class 7.8, and the object was the scientific communication of class 7.8. The research was conducted at the odd semester in the 2018/2019 academic year. This research was qualitative research. The data in this research were the category of scientific communication. The data source in this research was the students. The data were collected using questionnaires. They were then analysed using qualitative-descriptive analysis technique.

3. Results and Discussion
The identification of the students' scientific communication can be done using a questionnaire. The scientific communication questionnaire used consists of four aspects, namely mentoring, writing, teamwork, and leadership. Each aspect consists of two indicators. The results of the students’ scientific communication assessment are presented in table 1.

| No | Scientific Communication Categories | Mode |
|----|-------------------------------------|------|
| 1  | Adequate                            | 2    |
| 2  | Adequate                            | 2    |
| 3  | Adequate                            | 2    |
| 4  | Very Good                           | 4    |
| 5  | Adequate                            | 2    |
| 6  | Adequate                            | 2    |
| 7  | Very Good                           | 4    |
| 8  | Adequate                            | 2    |
| 9  | Adequate                            | 2    |
| 10 | Adequate                            | 2    |
| 11 | Adequate                            | 2    |
| 12 | Adequate                            | 2    |
Based on table 1, it is known that there are 8 students with excellent scientific communication, 5 students with good scientific communication, and 19 students with adequate scientific communication. In curriculum 2013 assessment, the adequate category is a category that has not reached the minimum completeness criteria so that the completeness of the class in this scientific communication assessment is only 40.6%. This class completeness of 40.6% has not met the minimum class completeness criteria which is 75%. The results of the percentage of the completeness of each question and each indicator are presented in table 2.

Table 2. The Completeness Percentages of the Scientific Communication for Each Question and Indicator

| Aspects | Item Numbers | Percentages | Mean |
|---------|--------------|-------------|------|
| Mentoring | 2           | 53.1        | 78.1 |
|          | 3           | 87.5        |      |
|          | 9           | 78.1        |      |
|          | 15          | 93.8        |      |
| Writing  | 1           | 56.3        | 52.4 |
|          | 4           | 18.8        |      |
|          | 13          | 87.5        |      |
|          | 16          | 46.9        |      |
Based on table 2, the aspects of scientific communication that have not reached 75% are writing and leadership. From the results of the identification of scientific communication, it is known that most of the scientific communication of the students is still low. Scientific communication is one of the competencies that students must possess. Scientific communication is the important skill for the students to communicate all their knowledge. Knowledge, if not communicated, will not be useful. Thus, it is important for the students to have good scientific communication so that they are able to convey their ideas. Scientific communication will also enable them to obtain the findings from the things they learn. The existence of scientific communication will also enable them to collaborate with their friends to learn and learn many things both at school and outside the school [1].

From the results of the research regarding the communication skills of the junior high school students using STEM-based science learning, it can be concluded that written communication skills in general are good enough [3]. Making scientific articles is also one way to strengthen scientific communication. The development of institutional repositories can also be used as a means of developing scientific communication [4].

The Open Access in Indonesia has begun to develop in various institutions, especially in higher education institutions. Institutional repositories are the media that have developed first as a means of disseminating institutional scientific work. A significant development occurred in the development of electronic journals in various fields of higher education that could be accessed openly. The media is a tool to trigger scientific communication activities in Indonesia. Through the media, the dissemination of knowledge can be accelerated, so as to enhance the growth of new knowledge [5]. To support the learning process at school, a good open access system can also be developed. Good language skills are also needed as a means of scientific communication [6]. Besides, art can also be used to develop scientific communication [7]. Teachers as facilitators and motivators of the students need to know the profile of the scientific communication owned by their students so that they can make further efforts to improve their students' scientific communication. One effort that can be done is to apply a particular model-based learning by utilizing an appropriate source or learning media.

4. Conclusion
The results showed that there were 8 students with excellent category, 5 students with good category, and 19 students with adequate category of scientific communication. Teachers are expected to make various efforts to improve the students' scientific communication given the importance of these competencies.

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