Communication Skills of Elementary School Students in Science Learning

Rista Nurfilaily, Sri Wuryastuti*, Susilawati, Nenden Sundari, Ita Rustiati Ridwan

Alumni1, Lecturer[2,3,4,5] Elementary School Teacher Education, Universitas Pendidikan Indonesia Serang Campus. Ciracas Street, Serang, Banten, 42112, Indonesia.

astuti58@upi.edu

Abstract

Communication skills are an important component of 21st century skills and these skills are needed to face future challenges. The purpose of this paper is to describe the communication skills of elementary school students both orally and in writing when participating in science learning activities. The approach used was qualitative and data collection techniques used observation, interviews, and student journals. The number of students who became respondents was five people consisting of three women and two men. The results of the analysis of the oral and written communication skills of elementary school students when participating in science learning activities are in the good and moderate categories. Elementary school students' communication skills need to be developed from an early age and integrated through science learning in class.

Keywords: student communication, elementary school, learning science.

A. INTRODUCTION

The world of education is currently faced with a trend known as 21st-century learning. One of the main challenges faced in 21st-century learning is information and communication technology. According to the National Association of Colleges and Employers (2022), these skills have been recognized as essential in many careers. They include communication skills, work ethic, teamwork, and critical thinking as four of the eight core competencies that employers look for in job applicants. In the opinion above, one of the learning skills in 21st-century learning, namely communication skills and related interpersonal skills, is a skill that is very much needed and must be mastered by students. Once the importance of communication skills in learning, then The Japanese National Curriculum for elementary school students implemented in 2020, carries out an academic reorientation that focuses more on social skills or communication skills (Okada & Matsuda, 2019)

Communication is a way for someone to express ideas, including learning. Mastery of students' communication skills is very important to improve the quality of learning. Communication skills are needed in all domains, especially learning science (Malik et al., 2018). Through communication, students will have new perceptions of learning. Practicing thinking to communicate something will make students a better understanding of science. For this reason, communication skills must get more attention from educators because by having good communication skills, students are certainly easy to communicate various

matters related to the subject matter, both orally and in writing. Remembering that communication skills are so important for students, communication skills need to be trained through learning at every level of education, including in elementary schools.

Learning science is the appropriate tool for practicing communication skills because according to the mandate of the 2013 Curriculum, all learning, especially science, must use a scientific approach. In the scientific approach, students do a lot of scientific skills. While the scientific skills in question are the ability to make observations, formulate problems and hypotheses, conduct experiments/experiments and collect data, analyze data and conclude, as well as communicate and apply concepts/principles in science learning activities. This is supported by the statement that Permendikbud No 22 Year 2016 concerning process standards that learning process for elementary and secondary education levels so that students achieve attitude, knowledge, and skill competencies. The selection of integrated thematic and/or thematic approaches and/or scientific and/or inquiry and discovery and/or learning can produces work based on problem-solving (project-based learning) adapted to the characteristics of competence and level of education

In learning science in elementary schools, learning is only directed at the first pillar of education, namely learning to know about cognitive development and ignoring affective and psychomotor aspects. This shows that science learning in elementary schools only emphasizes the transfer of material aspects without student activities to carry out scientific work including communication skills. Based on the facts above and the importance of students' communication skills from an early age, it is necessary to analyze students' communication skills, especially in elementary school through science learning. With science learning methods that are following the characteristics of elementary school students, it is hoped that students' communication skills can emerge and be honed.

Based on the experience of researchers when making observations in elementary schools, it was found that not all students were able to communicate their opinions, especially in communicating verbally. This is because there are still many students who feel embarrassed when speaking in front of the class or a crowd. So to overcome the gap in elementary school students' communication skills, science lessons were carried out and then an analysis was carried out on their communication skills.

Practicing communication skills can be done by conducting group discussions, presentation activities, and debriefing between teachers and students. Therefore, in this study, the science learning process was designed in such a way that students' communication skills could be explored. Science learning in this study discussed the concept of Animal Adaptation to Its Environment.

B. METHOD

Judging from the type of delivery, communication skills are divided into three types, namely oral communication, written communication, and non-verbal communication. According to that communication that is commonly carried out between educators and students is oral communication and written communication. According to Adman (2004), the basic principles that must be considered in communicating consist of 5 rules, namely: respect, empathy, audible, clarity, and humble. However, in this study, researchers only used 3 rules to see students' oral communication abilities, namely respect, audible, and clarity.

This type of research is descriptive qualitative research. Data collection techniques in this study used observation, interviews, and student journals. The observation used is

participatory observation. The interviews used in this study were unstructured interviews, where the researcher use an unsystematically arranged interview guide, but the questions asked were flexible and did not deviate from the interview objectives that the researcher had set. The student journal referred to in this study is a student learning journal that contains the results of learning experiences written by students.

The data analysis technique used in this research is using the ABI (Argumentation Based Inquiry) data analysis model which is a student-centered instructional tool for communication skills in science learning by collecting, analyzing, and interpreting data. In ABI, students carry out intensive reasoning processes through communication. Furthermore, the collected data was analyzed and interpretation of the data was carried out. (Weiss, McDermott, & Hand, 2021)

The subjects in this study were 5 sixth-grade of elementary school students which consisted of 2 male students and 3 female students. The research question was formulated as follows: To what extent are the communication skills of elementary school students in learning Animal Adaptation to their Environment?

C. RESULTS AND DISCUSSION

The following is a presentation of the findings from the researcher's observations of students' oral and written communication skills based on the attainment of scores from a scale of 0 to 2 that the researchers obtained from predetermined assessment indicators.

A. Oral Communication Skills

The following is a finding of students' oral communication skills. For students who achieve a total score of 5-6, they are classified in the very good category (A). Students with a total score of 3-4 are classified in the good category (B). Students with a total score of 1-2 are classified in the sufficient category (C). Students with a total score of 0 are classified in the failed category (D).

Table 1. Data on the Observed Students' Oral Communication Skills with a scale (0-2)

No	Name	Aspects Observed			Score	Category
		Respect	Audible	Clarity		
1	DSS	2	1	2	5	A
2	TTK	1	1	2	4	B
3	AQL	2	1	2	5	A
4	IDN	1	2	2	5	A
5	AFL	1	2	2	5	A

Based on the table above, we can see that the students' oral communication skills are very varied. The discussion of each aspect is as follows:

0. Respect

The results of the analysis on aspects of respect show that 3 out of 5 students or a percentage of 60% of all students, namely TTK, IDN, and AFL have an attitude of respect for other students when conveying criticism. Respect is a common social concept to respect for the other person (Nasie, 2023). Respect is an attitude so in other words, when this communication ability can be explored in students, students' attitudes will

automatically appear. Attitudes are also part of learning objectives besides cognitive and psychomotor.

1. Audible

The results of the analysis on aspects of audible indicate that 3 out of 5 students or with a percentage of 60% of all students, namely DSS, TTK, and AQL, when conveying information and suggestions, produce unclearly voices. So researchers need to get closer so that what is conveyed is properly heard. The lack of clarity in conveying this information is because some students still feel shy and lack confidence when communicating their opinions and are also caused by a lack of mastery of the material. Students are usually fixated on books or information from teachers. So that when giving information does not hit the teacher and other students. However, the opinion conveyed can be understood even though it must be confirmed by the teacher first. Apart from the aspects mentioned above, a voice that is not clear is also the communicative style of the speaker. With such a communicative style, the idea of communication has not been optimally conveyed to listeners (Culpeper & Qian, 2020). Whereas 2 out of 5 students or a percentage of 40% of the total students, namely IDN and AFL, when conveying information and suggestions, voices are heard clearly and when conveying their opinions the recipients of the message can understand them well.

2. Clarity

The results of the analysis on aspects of clarity show that all students are able to explain information properly to the teacher or other students and can also be held accountable for the information conveyed. Because all students can explain well the characteristics of animals in adapting to their environment. Whether it's animals that he often encounters at home or animals that researchers display via video, even though what each student conveys is different. This happens because each student has their own style of expressing their opinions orally. To further improve students' communication skills verbally, researchers apply the results of Soysal's research (2022) that students' communication skills will improve even more if assisted by motivating teacher questions.

The results of the analysis based on students' oral communication skills in learning Animal Adaptation to Their Environment as a whole show that 80% belong to the very good category because most students are proficient in explaining the characteristics possessed by each animal in adapting to its environment. While 20% of students belong to the good category because there are still students who feel embarrassed and not confident when expressing their opinions. Although some students still feel embarrassed when expressing their opinions, they are already able to express their opinions orally clearly and the delivery of each student is different.

Written Communication Skills

The following is the result of an assessment of observation activities conducted by researchers regarding students' written communication skills. For students who achieve a total score of 5-6, they are classified in the very good category (A). Students with a total score of 3-4 are classified in the good category (B). Students with a total score of 1-2 are classified in the sufficient category (C). Students with a total score of 0 are included in the failed category (D).

Table 2. Data on the Observed Students' Written Communication Skills with a scale (0-2)

No	Name	Aspects Observed			Score	Category
		Prepare reports clearly and systematically	Define the results of observations in the written form appropriately	Describe the results of observations in detail		
1	DSS	2	2	2	6	A
2	TTK	1	2	1	4	B
3	AQL	2	2	1	5	A
4	IDN	2	2	2	6	A
5	AFL	2	1	2	5	A

Based on the table above, we can see that students' written communication skills are different. Each student has their own style of expressing their opinions in writing. The following is an explanation of the written communication skills of each participant.

- DSS Subject

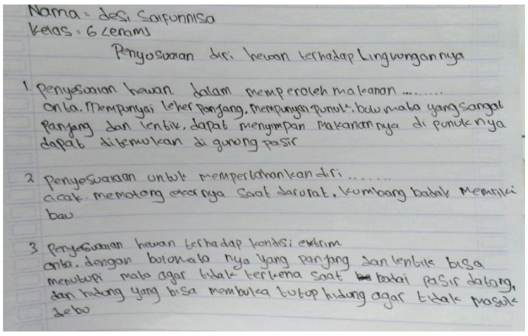

Figure 1. DSS Student Journal

The results of DSS student journals in writing their reports are as follows. He is able to compile reports clearly and systematically, so DSS gets a score of 2. Then in defining the results of observations in written form, DSS is able to write them accurately and completely according to what they see in the video presented and in line with what has been explained by the teacher. Therefore, it was given a score of 2. Furthermore, in describing the results of observations, DSS can describe them in detail, so DSS received a score of 2. Thus, based on the total score obtained by DSS was 6. This indicated that DSS students were included in the criteria for students who have very good written communication skills (A).

- TTK Subject

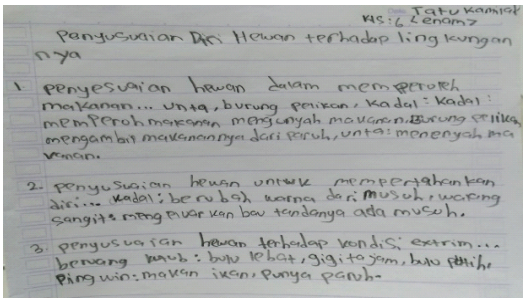

Figure 2. TTK Student Journal

The results of TTK student journals in writing their reports are as follows. He is already able to compile reports clearly but not systematically, so TTK students get a score of 1. For the aspect of defining the results of observations in written form, TTK is able to write them precisely and completely in line with what is already explained by the teacher. Therefore it was given a score of 2. Furthermore, in describing the results of observations, TTK can describe the observations well but only for some of the animals observed. TTK described them in less detail, so TTK students got a score of 1. The total score obtained by TTK students is 4. This indicates that TTK is included in the criteria for students who have good written communication skills (B).

- AQL Subject

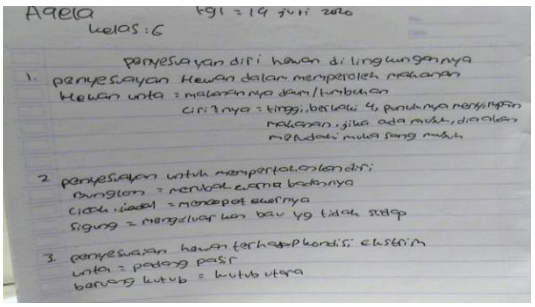

Figure 3. AQL Student Journal

The results of AQL students' journals in writing their reports are as follows. She is able to compile reports clearly and systematically, so AQL gets a score of 2. In defining the results of observations in written form, AQL is able to write them precisely and completely according to what they see in the video and in what has been explained by the teacher. Therefore, a score of 2 was given for the aspect. Furthermore, in describing the results of observations, AQL is able to describe the results of their observations well, but only in some of the animals. AQL described them in less detail, so AQL received a score of 1. The total number of scores obtained by AQL students is 5. It indicates that AQL is included in the criteria for students who have very good written communication skills (A).

- IDN Subject

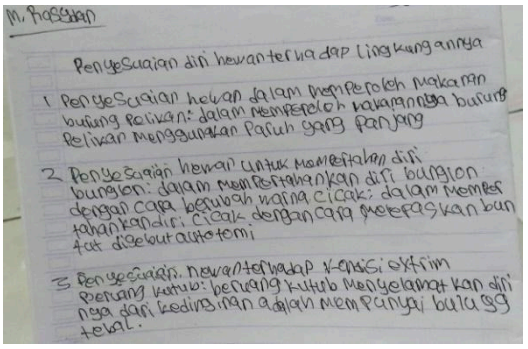

Figure 4. IDN Student Journal

The result of IDN journals in writing animal adaptation to their environment is able to compile reports clearly and systematically, so IDN gets a score of 2. In defining the results of observations in written form, IDN is able to write them accurately and completely according to what they see in the video that is shown and in line with what has been explained by the teacher. Therefore, it was given a score of 2. Furthermore, in describing the results of observations, IDN is able to describe it in detail, so IDN students received a score of 2. The total score obtained by IDN students was 6. This indicated that IDN students were included in the criteria for students who have the ability excellent written communication (A).

- AFL Subject

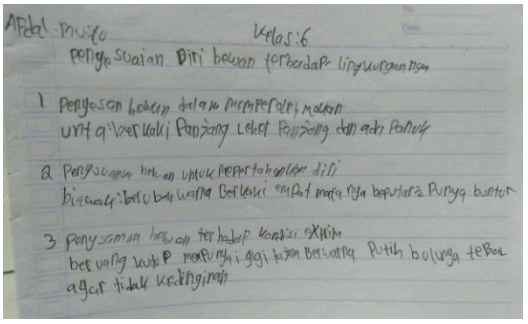

Figure 5. AFL Student Journal

The results of AFL student journals in writing their reports are as follows. He is able to compile reports clearly and systematically, so AFL gets a score of 2. In defining the results of observations in written form, in some animals, AFL can write them precisely and follow what is written. He saw the video that was shown and aligned with what the teacher had explained. However, there is one animal that he wrote incorrectly and does not match the characteristics of that animal. Therefore, it was given a score of 1. Furthermore, in describing the results of observations, AFL students were able to describe it in detail, so AFL students received a score of 2. Based on the total score obtained by AFL students was 5. It indicated that AFL students were included in the criteria for students who have the ability excellent written communication (A).

The results of the analysis of the students' written communication skills in the study of animal adaptation to their environment as a whole show that 80% of students fall into the very good category. Because most students are proficient in explaining the results of

their observations about the characteristics of animals to adapt to their environment in the written form correctly. While 20% of students belong to the good category. This is because a small number of students still cannot systematically compile reports on the results of their observations and students are also found to be less detailed when defining the results of their observations. Based on the data above, the oral and written communication skills of the subjects studied were almost the same. It is different from the results of research from Thu, et al. (2021) which stated that in general, a person will have written communication skills better than oral communication. The researchers assumed that the difference in the results is acceptable since it is natural due to factors such as the linguistic intelligence of a person and other factors.

D. CONCLUSION

Based on the findings and results regarding students' communication skills in learning animal adaptation to their environment, the following conclusions are obtained:

The ability of students' oral communication in learning animal adaptation to their environment is included in the very good and good categories. It can be seen from the students who are able to explain the characteristics of animals to adapt to their environment systematically. Although some students lack confidence when expressing their opinions, students can express their opinions orally clearly and the way of delivery of each student is different.

Students' written communication skills in learning animal adaptation to their environment are also included in the very good and good categories. It can be seen from the students who can explain the results of their observations about the characteristics possessed by animals to adapt to their environment in the written form correctly. Although a small number of students have not been able to compile reports on the results of their observations systematically and have not been detailed in defining the results of their observations.

REFERENCES

Adman, A. (2004). Komunikasi Efektif dalam Tim. Manajerial: Jurnal Manajemen dan Sistem Informasi, 3(1), 7-77. doi:10.17509/manajerial.v3i1.16486

Culpeper, J., & Qian, K. (2020). Communicative Styles, Rapport, and Student Engagement: An Online Peer Mentoring Scheme. Applied Linguistics, 41(5), 756-786. doi:10.1093/APPLIN/AMZ035

Malik, A., Setiawan, A., Suhandi, A., Dirgantara, Y., Yuniarti, H., & Sapriadil, S. (2018). Enhancing Communication Skills of Pre-service Physics Teacher through HOT Lab Related to Electric Circuit. Journal of Physics: Conference Series, 012-017. doi: 10.1088/1742-6596/953/1/012017

Nasie, M. (2023). The respect pyramid: A model of respect based on lay knowledge in two cultures. Culture and Psychology, 29(1), 81-95. doi:10.1177/1354067X211066819/ASSET/IMAGES/LARGE/10.1177_1354067X211066819-FIG1.JPEG

Okada, Y. & Matsuda, T. (2019). Development of a Social Skills Education Game for Skills Education Game for Elementary School Students. Simulation and Gaming, 50(5), 598-620. doi:10.1177/1046878119880228

Soysal, Y., & Soysal, S. (2022). Exploring Science Teacher Questions' Influence on the Students' Talk Productivity: A Classroom Discourse Analysis Approach. Sage Open, 12(2), 1-16. doi:10.1177/21582440221102433

Thu, Y., French, L., Hersh, B., Nelson, M., & Whitenack, L. (2021). Students' Perceptions of FSBio 201, A CURE-Based Course that Scaffolds Research and Scientific Communication, Align with Learning Outcomes. Integrative and Comparative Biology, 61(3), 944-956. doi:10.1093/ICB/ICAB128

Weiss, K. A., McDermott, M. A., & Hand, B. (2021). Characterizing immersive argument-based inquiry learning environments in school-based education: a systematic literature review. Studies in science education, 58(1), 15-47. doi:https://doi.org/10.1080/03057267.2021.1897931