Analysis of Communication Skills and Empathy of Fifth-Grade Students of Elementary Schools through ICT-based Learning

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Article Info

Abstract

The 21st-century skills are needed by students in learning and adapting to the rapid development of technology. This study aims to analyze the communication skills and students' empathy after ICT-based learning. The method employed in this study was pre-experimental with one group pretest-posttest design. The sample consisted of 131 students in the fifth grade of primary schools. The techniques of data collection were observation and questionnaires. The data was analyzed using descriptive quantitative analysis. The results showed that the average score of communication skills for Sub Theme 1 to Sub Theme 3 lessons increased from 76 to The average score of students' empathy for Sub Theme 1 to Sub Theme 3 lessons increased from 76 to 97. The results indicated that the average score of communication skills and students' empathy was above the Minimum Mastery Criteria (>75). The students performed a positive response to ICT-based learning. Based on the results, it can be concluded that communication skills and empathy of the fifth-grade students of primary schools increase through ICT-based learning.

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INTRODUCTION

21st-century is indicated by the rapid development of science and innovation in information and communication technology (Muin, 2018). Improvement in the education system is continuously conducted to prepare human resources with good characters and quality in line with the demand of current development. The required education system is undoubtedly a system that can equip and prepare students with 21st-century skills (Hapsari, and Nurcahyanto, 2016; Maria, and Sediyono, 2017). The skills help students learn and adapt to the current development (Ongardwanich, Kanjanawasee, and Tuipae, 2015).

One of the 21st-century skills which are important for students to be developed in facing the current development is communication skill. Communication is a basic human need to interact with each other in the various aspects of life (Urwani, Ramli, and Ariyanto, 2018). In learning, communication skill is a vital aspect of conveying ideas, facts, and concepts obtained by students (Oktafiani, Subali, and Edie, 2017). Students need to develop effective communication skills to be able to convey messages conforming to the aim (Pal, Halder, and Guha, 2016).

Besides communication skills, another 21st-century skill which is important for students is empathy. Pertiwi (2018) elaborated that empathy is someone's ability to understand and respect others' feelings as well as seeing a situation from others' points of view. Empathy is correlated to communication skills in terms of respecting the differences in opinion by keeping words and others' feelings (Zuhara, 2015). Therefore, the two aspects are important to develop for students since primary ages so that the students are capable of communicating and possessing good characters.

However, building the two aspects of the learning process at primary schools has not been conducted seriously. The result of preliminary observation in grade 5 Public Elementary School Sendangmulyo 04 indicated that students had not developed optimal communication skills.

Students speak with less clear articulation and less straight forward in presenting their work in front of the class. This result is in line with the questionnaire result of the preliminary research conducted by Auliyah, and Nurita (2015) which pointed out that students' communication skills are still low. Moreover, the observation result indicated that students had not performed empathy in the classroom. Students tend to reproach their friends who convey a wrong opinion as well as indicating less concern to help their friends in solving difficulties. This result is supported by the findings of initial data by Nurfidia (2016) showing that students tend to be less concern with their friends in need of help as well as less focused on the teachers or students who are conveying their opinions.

The above problems are caused by learning, which focuses more on developing students' cognitive aspect without considering their attitude and skill aspects. Auliyah, and Nurita (2015) and Nurfidia (2016) in their studies elaborated that learning carried out by teachers in the classroom still emphasizes the conceptual understanding, causing the students to be passive, less interactive and less collaborative among others. As a result, students are lack of concern with each other.

A solution to overcome the mentioned problems is improving the learning quality, so it does not focus on the students' cognitive aspect but also concerning students' skills and attitude. The learning quality can be enhanced through ICT-based learning, which is student-centered. (Setiawan, Isnaeni, Budijantoro, and Marianti, 2015). ICT-based learning can improve the learning quality as it can stimulate attention and raising learning performance as well as enabling students to figure out scientific principles easily in the various students' real-life aspects (Dewi, Nugroho, and Sulhadi, 2015; Winarni, Dadi, and Setiawan, 2016).

ICT is generally used in students' daily life (Ashari, Lestari, and Hidayah, 2016) in line with the questionnaire by Firdaus, Isnaeni, and Ellianawati (2018) asserting that 88% of the 39 primary school students have been using hand-phones connected to the internet. However,

schools have not utilized ICT optimally to enhance learning quality. Students can take advantage of ICT for individual or in-group learning. ICT facilitates communication among students as well as students with their teachers during learning so that it can enhance communication skills and students' empathy. Based on the above elaboration, this present study aims to analyze the communication skills and students' empathy after using ICT-based learning.

METHODS

This study employed a pre-experimental method with one group pre-test – post-test design. The design was started by measuring the initial communication skills and students' empathy. Subsequently, students were given treatment through ICT-based learning and ended by measuring the final communication skills and students' empathy after the treatment. The one group pre-test – post-test design is presented in figure 1.
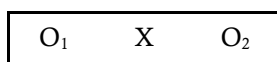
$$\boxed{\quad O_1 \qquad X \qquad O_2 \quad}$$

Figure 1. One Group Pre-test – Post-test Design
Information:
O_1 = initial score of communication skills and students' empathy
X = treatment through ICT-based learning
O_2 = final score of communication skills and students' empathy

The population of this study was students in the fifth grade of Elementary School Gugus Bawana Ageng, while the samples were 131 students in the fifth grade of Public Elementary School Sendangmulyo 04 and Islamic Elementary School Tunas Harapan. The techniques of data collection used in this study were observation and questionnaires. The observation was conducted to collect the initial data of communication skills and students' empathy before ICT-based learning. Furthermore, the observation was used to collect the data of communication skills and students' empathy during ICT-based learning. The questionnaire was used to collect the data of students' response to ICT-based learning. The

obtained data from observation and questionnaires were analyzed using the formula as follows.

$$P = \frac{F}{N} \times 100$$

Information:
P = score
F = the obtained score
N = the total score

The data of communication skills and students' empathy, which has been analyzed was converted to Minimum Mastery Criteria of Education Unit at Public Elementary School Sendangmulyo 04 and Islamic Elementary School Tunas Harapan as the research sample. The assessment criteria of communication skills and students' empathy are presented in table 1.

Table 1. Assessment Criteria of Communication Skills and Students' Empathy

Score	Predicate	Criteria
$93 \leq P \leq 100$	A	Excellent
$84 \leq P \leq 92$	B	Good
$75 \leq P \leq 83$	C	Fair
< 75	D	Need guidance

Minimum Mastery Criteria = 75

RESULTS AND DISCUSSION

In this study, students followed the ICT-based learning individually or in a group with student-centered learning activities. ICT-based learning was conducted for every Sub Theme with science content for Things around Us Theme of grade five in the primary school. Students do learning activities such as discussing, writing an experiment report and presenting an experiment report with the help of android devices. The data analyzed in this study were communication skills and students' empathy.

Analysis of Students' Communication Skills
Students' communication skills are measured through observation of the ICT-based learning process, starting from Sub Theme 1 to Sub Theme 3. The indicators of communication skills measured in this study are (1) speaking with clear articulation, (2) presenting data in the form of table and diagrams, and (3) presenting in straightforward language (Binkley, Erstad,

Herman, Raizen, Ripley, and Rumble, 2010; OSPI, 2018). The analysis result of students' communication skills is presented in table 2.

Table 2. Analysis Result of Students' Communication Skills

Indicators	Score			Average	Criteria
	ST 1	ST 2	ST 3		
Speaking with a clear articulation.	80	84	94	86	Good
Presenting data in the form of table and diagrams	72	78	86	79	Fair
Presenting in straight forward language	76	82	92	83	Fair
Average	76	81	91	82	Fair

Based on the analysis result of students' communication skills in table 2 there was an improvement of students' communication skills in ICT-based learning for each Sub Theme. The result indicated that the average score of students' communication skills was 82, which was above Minimum Mastery Criteria (>75) with Fair Predicate (C). The improvement in the average score of students' communication skills is presented in figure 2.
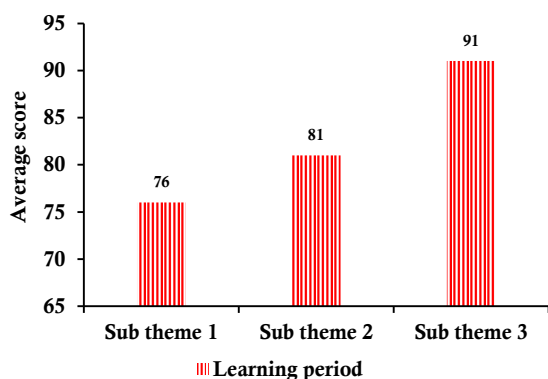

Figure 2. Improvement in the Average Score of Students' Communication Skills

Based on the average score of students' communication skills in figure 2 there was an improvement of students' communication skills through ICT-based learning. The improvement in students' communication skills in this learning was affected by the use of ICT which provides opportunities and extends the interaction of the teachers and students so that it can develop communication skills (Asy'ari, and Gunawan, 2017). This result is supported by the research of Dewi, Nugroho, and Sulhadi (2015) showing that learning using Computer-Based Instruction (CBI) media can enhance the prediction skills in the science of fifth-grade students at primary schools.

Analysis of Students' Empathy

Students' empathy was measured through observation during the ICT-based learning process, starting from Sub Theme 1 to Sub Theme 3. The indicators of empathy measured in this study are (1) respecting differences in opinion, (2) not being selfish, and (3) speaking smoothly (Nurfidia, 2016; Zuhara, 2015). The analysis result of students' empathy is presented in table 3.

Table 3. Analysis Result of Students' Empathy

Indicators	Score			Average	Criteria
	ST 1	ST 2	ST 3		
Respecting differences in opinion	80	88	100	89	Good
Not being selfish	76	86	98	87	Fair
Speaking smoothly	72	78	94	81	Fair
Average	76	84	97	86	Good

Based on the analysis result of students' empathy in table 2 there was an improvement of students' empathy in the ICT-based learning process for each Sub Theme. The results indicated that the average score of students' empathy was 86, which was above the Minimum

Mastery Criteria (>75) with Good predicate (B). The improvement in the average score of students' empathy is presented in the following figure 3.
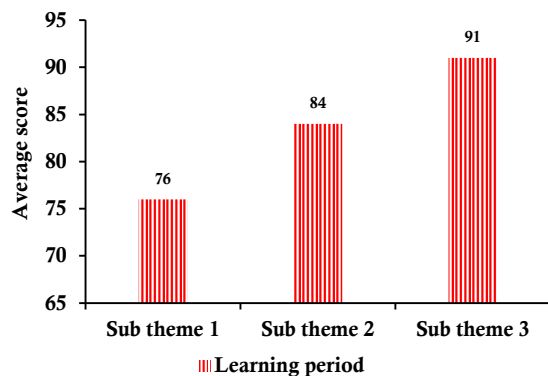
Figure 3. Improvement in the Average Score of Students' Empathy

Based on the average score of students' empathy in figure 3 there was an improvement of students' empathy through ICT-based learning. The improvement in students' empathy cannot be separated from the interaction and collaboration among students so that they can understand each other more. This is supported by Nurfidia (2016) study through learning with a role model method which supports collaboration among students so that it can enhance students' empathy.

ICT-based learning, which is student-centered obtained a positive response from the students. The result of questionnaires about students' responses indicated that 92% of the students prefer ICT-based learning to the learning, which only uses paper and other stationaries. Maria, and Sediyono (2017) revealed that ICT-based learning stimulates students to be more active in learning, create more fun and lively learning, and make students more confident in expressing themselves. These reasons make ICT-based learning suitable to develop 21st-century skills required by the students in facing the current development.

CONCLUSION

Based on the result of the study, it can be concluded that the average score of communication skills for Sub Theme 1 to Sub Theme 3 increases from 76 to 91. The average score of students' empathy for Sub Theme 1 to Sub Theme 3 increases from 76 to 97. The results indicated that the average scores of communication skills and students' empathy are above the Minimum Mastery Criteria (>75). The students' response indicates that 92% of the students prefer ICT-based learning to the learning, which only uses paper and other stationery.

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