

Analysis of Students' Communication Skills in 21st Century Learning: Application of 4C-Based Problem Based Learning (PBL) in Elementary Schools

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Abstract: *This study aims to analyze the communication skills of elementary school students in the context of 21st century learning through the application of the 4C-based Problem Based Learning (PBL) model. The research method used is a qualitative approach with a case study design. The subjects of this study were 5th grade students at SD Negeri Bekonang 02, Mojolaban District in 2024/2025. Data collection used observation, interview, and documentation techniques, and was analyzed using the Miles and Huberman interactive model. The results showed that the application of 4C-based PBL can improve students' written communication skills in science learning. Students become more active in expressing several opinions and writing experimental reports. Learning in elementary schools should be contextual, collaborative, and also problem-based in order to support skilled communication skills in the classroom.*

Keywords: *Communication Skills, 4C-Based Problem Based Learning, 21st Century Learning, Elementary Schools*

Abstrak: Penelitian ini bertujuan untuk menganalisis keterampilan mengomunikasikan siswa sekolah dasar dalam konteks pembelajaran abad 21 melalui penerapan model Problem Based Learning (PBL) berbasis 4C. Metode penelitian yang digunakan yaitu pendekatan kualitatif dengan desain studi kasus. Subjek penelitian ini pada penelitian ini yaitu siswa kelas V di SD Negeri Bekonang 02 Kecamatan Mojolaban Tahun 2024/2025. Pengumpulan data menggunakan Teknik observasi, wawancara, dan dokumentasi, serta dianalisis dengan model interaktif Miles dan Huberman. Hasil penelitian menunjukkan bahwa penerapan PBL berbasis 4C dapat meningkatkan keterampilan mengomunikasikan siswa secara tertulis pada pembelajaran IPAS. Siswa menjadi lebih aktif dalam menyampaikan beberapa pendapat dan menuliskan laporan percobaan. Pembelajaran di Sekolah Dasar selayaknya harus kontekstual, kolaboratif, dan juga berbasis masalah agar bisa mendukung keterampilan mengomunikasikan yang terampil di dalam kelas.

Kata Kunci: Keterampilan Mengomunikasikan, Problem Based Learning Berbasis 4C, Pembelajaran Abad 21, Sekolah Dasar

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INTRODUCTION

Along with the implementation of the independent curriculum, learning has undergone changes, one of which is science learning that is combined with social studies, which is referred to as IPAS. Natural and Social Sciences (IPAS) is one of the subjects taught in elementary school. IPAS includes learning about science and social studies, which covers the study of nature, technology, the environment, geography, history, and culture. There are several learning theories that are relevant to IPAS learning, namely constructivism theory, cooperative learning theory, and project-based learning theory (Suhelayanti, 2023). This opinion is echoed by Rusilowati (2023), who states that IPAS is closely related to nature and human interaction in terms of content. IPAS learning needs to present contexts that are relevant to the natural conditions and environment surrounding students

The American Association for the Advancement of Science in Permendikbud No. 58 of 2014 classifies science process skills into basic skills and integrated skills. According to Suja (2021), basic process skills include observing, classifying, predicting, inferring, applying concepts, communicating, and asking questions. Science process skills really need to be taught in accordance with the cognitive development level of students. Science process skills will be the driving force for the discovery and development of facts and concepts as well as the growth and development of attitudes, insights, and values. Thus, students are expected to master various types of science process skills without having to master all the facts and concepts contained in the science cluster. Therefore, this study focuses on the skills that are the focus in the field. Communication skills are very supportive in conveying and facilitating the development of students' facts in the classroom (Maulinda & Putra, 2024).

Meikasari (2020) describes that written communication can take the form of summaries, writing, graphics, or images. Skill assessment is directed at performative indicators such as accuracy, speed, and independence in task execution (Yusuf, 2017). In line with this, it would be better if the assessment instruments were tailored to the background and conditions of the students in the field. The assessment carried out is a performance assessment. According to Muslich (2019), performance assessment is an assessment process that requires students to demonstrate their competence in the form of real skills in accordance with predetermined indicators.

Communication skills can be measured using a rubric, which is then used to create a communication skills worksheet. This rubric contains indicators to be achieved, which are of course adjusted to the conditions of the students. To facilitate the assessment of skills, a rating scale assessment rubric can be used. The indicators that have been developed are inputted into the rubric with performance achievement levels. To achieve a high level of communication skills assessment, it is necessary to apply a 21st-century learning model, one of which is 4C-based Problem-Based Learning (Seruni et al., 2024; Saefudin et al., 2024).

Lorna Uden and Chris Beaumont argue that *students not only have to concentrate on learning the relevant knowledge and skills to solve the problem, but they also have to develop problem-solving and learning-to-learn skills*. This means that students should not only concentrate on learning relevant knowledge and problem-solving skills, but they should also develop problem-solving and learning skills. Problem-based learning does not only focus on the transfer of knowledge from teachers to students, but emphasizes collaboration between teachers and students as well as among students in actively formulating and solving problems (Hidayati & Rahayu, 2021). Problem-Based Learning (PBL) is a learning model obtained through a process of understanding the resolution of a problem (Huda, 2017). PBL is a learning model that emphasizes the independence of students in solving problems that are

relevant to the context of the material to be learned with the guidance and direction of the teacher in order to train higher-level thinking and develop skills in problem solving in everyday life.

For PBL to be more effective in the context of 21st-century learning, this approach needs to be integrated with the development of 4C skills, namely *critical thinking*, *creativity*, *communication*, and *collaboration*. 4C learning is systematically structured with the aim of improving graduate competency standards in both formal and non-formal education (Jonaeidy, 2019:140). 4C learning is learning that is designed, structured, and implements 4C skills in the learning process with the aim of training students' critical thinking skills, increasing students' self-confidence, and students' creativity (Daryanto & Karim, 2017:12).

Communication skills are an important part of 4C, which can be measured using an assessment rubric and communication skills worksheets. This rubric contains indicators to be achieved and has been adapted to the conditions of the students. To facilitate the assessment of skills, a *rating scale* assessment rubric is used to display the levels of performance achievement. In this context, the application of 21st-century learning models such as 4C-based PBL is important to encourage a more meaningful assessment of communication skills that is oriented towards the active involvement of students (Seruni et al., 2024; Saefudin et al., 2024)..

The purpose of this study is to analyze the communication skills of fifth-grade elementary school students in the context of 21st-century learning through the application of the 4C-based Problem-Based Learning (PBL) model at SD Negeri Bekonang 02, Mojolaban District, Sukoharjo Regency, in the 2024/2025 academic year.

RESEARCH METHOD

The research method used in this study is a qualitative approach using a descriptive method. The research method used is a qualitative method. Methodology is the process, principles, and procedures we use to solve problems and find answers (Mulyana, 2018). According to Sugiyono (2018), qualitative research is research that studies natural settings, where the researcher is the key instrument, data collection techniques are carried out in a combined manner, and data analysis is inductive. The purpose of qualitative research is to preserve the form and content of human behavior and analyze its characteristics, not to convert it into quantitative units (Mulyana, 2018). The purpose of this descriptive research is to produce a systematic, factual, and accurate description of the facts, characteristics, and relationships between the phenomena being studied. The subject of this study is grade V of Bekonang 02 Public Elementary School, Mojolaban District, Sukoharjo Regency, for the 2024/2025 academic year. Data collection techniques for qualitative research include observation, interviews, and documentation studies. 1) Observation: The observation conducted in this study was observation; 2) Work interviews: Interviews were conducted to supplement the information and efforts made to obtain correct information and appropriate sources of information. In this study, the author interviewed 5 students to find out how the learning process was going; 3) Documentation study: This study was necessary to sharpen the research analysis.

RESULTS AND DISCUSSION

This research was conducted in grade 5 of Bekonang 02 Public Elementary School, Mojolaban District, Sukoharjo Regency, in the 2024/2025 academic year. The school is located at Jl. Merak No. 70, Bekonang Village, Mojolaban District, Sukoharjo Regency. The activity began with coordination with the principal and grade 5 teachers who would be the subjects of the research. The next step was for the researcher () to observe the teaching module with the initial competency of the water cycle. During the learning process, the teacher taught using an innovative learning model, namely the 4C-based Problem-Based Learning (PBL) model.

1. Analysis of the lesson plan implementation in the 5th grade

The teaching modules have been compiled in accordance with the specified rules, and the syntax of the 4C-based PBL learning model is already in place. The LKPD, which contains worksheets for communication skills, is also available and has been compiled in accordance with the characteristics and conditions of the students. The results of the observation of the implementation of IPAS learning using the 4C-based PBL model in class V of Bekonang 02 Public Elementary School, Mojolaban District, Sukoharjo Regency, for the 2024/2025 academic year, which was conducted on April 26, 2025, can be detailed as follows:

a. Communication of lesson objectives and motivation of students

At this stage, communication occurs between teachers and students in conveying learning objectives. This communication is part of the 4Cs of 21st-century skills, which are essential in the learning process. The author suggests using provocative questions and linking them to learning objectives.

b. Orienting students to the problem.

At this stage, the teacher presents a problem, namely a video about flooding. Then, students are given the opportunity to see the causes. The author suggests showing videos from the surrounding area so that students can gain a deeper understanding. The 4C skills in critical thinking emerge at this stage, where students process the knowledge obtained through their five senses to arrive at the truth.

c. Planning problem solving.

At this stage, the teacher gives instructions to students to complete the worksheets, then divides them into equal groups. An interesting thing happens when the groups are named according to the material, namely water, clouds, and sun. In this phase, 4C skills emerge where students think critically and work creatively.

d. Solving problems.

The activity carried out at this stage is conducting an experiment on rainfall. Students are actively involved in this simple experiment. Teachers, as facilitators, also motivate and encourage students to grasp the concepts from the experiment. Critical thinking skills also come into play here.

e. Analyzing and evaluating the problem-solving process.

After conducting the experiment, students develop and present their work in a communication skills report that has been provided. This activity has been carried out, but the author suggests that when pouring hot water for the experiment, assistance should be provided to ensure safety.

Based on the details of the learning activities that have been presented, we can draw a common thread, namely that the implementation of learning using the 4C-based PBL model in class V of Bekonang 02 Public Elementary School, Mojolaban District, Sukoharjo Regency, for the 2024/2025 academic year has been running well, with all syntaxes being applied sequentially and appropriately. There are only a few things that need to be strengthened during learning practices to ensure that they remain safe.

2. Interviews with Teachers and Students

The results of an interview with the fifth-grade teacher, Mr. Yayan Prasetya, on April 26, 2025, revealed that learning activities improved when the 4C-based PBL model was implemented. Student activities became more focused and minimized misconceptions in science learning. Students who were initially less active became more enthusiastic during the learning process

In line with this, the results of interviews with students, namely Naura Nadhifa, on April 26, 2025, showed that they were happy and interested in IPAS learning using 4C-based PBL. The students were very enthusiastic when conducting experiments because they rarely conducted experiments.

2. Document Study of Grade List

From the evaluation results, it can be seen that the average score for communication skills obtained by students has increased from before and after learning with 4C-based PBL. The table of average communication skill scores is as follows

Tabel 1. Virtual Reality Menu Testing on the Application

No.	Implementation	Minimum		Average
		Score	Maximum Score	
1	Pretest	58	79	71,03
2	Posttest	70	89	77,76

Source:: Research Data 2025

The table shows a comparison of pretest and posttest results given to students to measure their communication skills before and after the implementation of the 4C-based Problem Based Learning (PBL) model.

In the pretest stage, student scores ranged from 58 to 79, with an average of 71.03. These scores indicate that before the implementation of 4C-based PBL, students' communication skills were still in the adequate category, with some students obtaining relatively low scores.

After the learning process was completed (posttest), there was a significant improvement. Student scores increased to a range of 70 to 89, with the average increasing to 77.76. The increase in the minimum and maximum scores shows that almost all students experienced an improvement in their communication skills. The average increase of +6.73 points (from 71.03 to 77.76) shows that the 4C-based PBL model is effective in improving students' communication skills

CONCLUSION AND RECOMMENDATIONS

Students' communication skills improved after the implementation of 4C-based Problem Based Learning. In addition, 4C-based PBL learning in grade 5 of Bekonang 02 Public Elementary School, Mojolaban District, in the 2024/2025 academic year also went well because it was packaged through discussion, presentation, and report writing activities. 21st-century learning, which emphasizes communication, collaboration, creativity, and critical thinking, has also been implemented in the syntax of 4C-based PBL. The author suggests always implementing meaningful learning and keeping up with the times so that students become more enthusiastic about learning.

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