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The Urgency of Developing a Multiliteracy Assessment Rubric to Support STEAM Learning in Science Subjects (IPAS): A Case Study in Grade V

Ratna Sari Dewi[1*], Intan Sari Rufiana[2], Sri Rahayuningsih[3]
Universitas Negeri Malang[1,2,3]
*E-mail: ratna.sari.2521038@students.um.ac.id

Abstract

Assessment practices in STEAM-based science learning (IPAS) in grade V of elementary schools are still dominated by conventional written tests that focus on final cognitive outcomes. This study aims to analyze the urgency of developing a multiliteracy assessment rubric in the context of STEAM-based IPAS learning in grade V of SD Negeri Kemirisewu II Pasuruan. This research employs a qualitative approach with a case study type. Data sources include primary data (fifth-grade teacher and two student representatives) and secondary data (teaching modules, evaluation sheets, and documentation). Data collection techniques included non-participant observation, semi-structured interviews, and documentary study. The findings reveal three main points. First, there is a gap between STEAM-oriented learning design and assessment practices that still rely on written tests. Second, aspects of collaboration, critical thinking, and creativity have not been systematically measured due to the teacher's lack of assessment rubrics. Third, the challenges faced by the teacher include time constraints, a large number of students, a lack of assessment instrument examples, and the absence of multiliteracy assessment training. The development of a multiliteracy assessment rubric is an urgent necessity at the research site. The rubric developed must be valid, practical, and aligned with the characteristics of the STEAM approach to assess students' collaboration, critical thinking, creativity, and communication processes objectively, systematically, and sustainably.

Keywords: Assessment Rubric, Multiliteracy, STEAM, IPAS

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Introduction

The paradigm shift in 21st-century learning has shifted the focus from mere content mastery toward the development of students' multiliteracy competencies. Multiliteracy encompasses reading, writing, numeracy, science literacy, digital literacy, as well as critical thinking, creativity, communication, and collaboration skills, which are primary demands in navigating the complexities of modern life (Wahyuni & Manita, 2025). 21st-century skills cannot be separated from the ability to reason critically, collaborate effectively, and create solutions to real-world problems (Greenstein, 2012). At the elementary education level, strengthening multiliteracy serves as a strategic foundation because this period is a golden age for children's cognitive and socio-emotional development (Trisnani et al., 2025). Without adequate multiliteracy skills, students will face difficulties in accessing information, evaluating the truth of statements, and actively participating in increasingly collaborative and project-based learning environments.

The STEAM (Science, Technology, Engineering, Arts, and Mathematics) approach is considered one of the most relevant learning strategies for developing integrated multiliteracy skills. Anwari et al. (2015) demonstrated that implementing authentic learning through the STEM approach (later expanded to STEAM) can improve students' metacognitive skills while building higher-order thinking habits. The characteristics of STEAM, which emphasize contextual, exploratory, and problem-solving-based learning, provide space for students to connect various disciplines meaningfully (Jasmaniah et al., 2025). In this process, students not only learn facts and concepts separately but are also trained to apply cross-disciplinary knowledge, naturally honing their science literacy, numeracy, as well as creative and critical thinking skills (Mutaqqin et al., 2025). Thus, STEAM functions not merely as a teaching method but also as a vehicle for building integrative thinking habits from an early age.

The successful implementation of the STEAM approach in developing multiliteracy heavily depends on the quality of the assessment system used to monitor and evaluate student learning outcomes. Assessments for 21st-century skills must go beyond conventional written tests and shift toward authentic assessment that reflects the application of knowledge in real-world contexts (Greenstein, 2012). Most existing science assessments for elementary students have not integrated scientific literacy, an essential component of science proficiency (Weiser et al., 2022). In fact, an ideal assessment in the STEAM context should be able to capture both process and learning outcome dimensions, including the ability to reason, collaborate, and communicate scientifically (Wibawa, 2024). The inability of assessments to capture these aspects results in an incomplete picture of student learning achievement, losing important pedagogical meaning.

Initial observations conducted in Grade V of SD Negeri Kemirisewu II Pasuruan revealed a significant gap between learning design and assessment practices in the field. Based on a review of teaching module documents, the teacher had designed learning activities with a STEAM orientation and integrated them with several learning outcomes from other subjects. However, during the learning process, the dominant forms of assessment were still written tests and individual assignments that mostly touched lower-order cognitive domains. This finding aligns with Weiser et al. (2022) statement that there remains a gap between the demands of science and literacy-based learning and the availability of quality assessment resources in early grades. This condition indicates that although the direction of learning is moving toward an integrative and exploratory approach, the measurement tools used are not yet fully aligned with the characteristics of STEAM.

More specific findings from these observations show that various important components of multiliteracy have not been systematically measured at the research site. Collaboration, for example, was assessed only through general observation without using a rubric or structured observation sheet, making it difficult for the teacher to distinguish levels of participation among students in group work. Similarly, for critical thinking skills, the teacher tended to look only at the correctness of final answers without tracing the reasoning process students went through to reach a particular conclusion. Assessing critical thinking skills requires a rubric capable of documenting the reasoning process, not just the final outcome (Greenstein, 2012). In fact, in STEAM-based learning, which is rich in collaborative and problem-solving activities, the thinking process and ways of collaborating are the core of the learning experience to be built (Riyadi et al., 2025). The absence of an adequate rubric causes the potential of STEAM learning to develop multiliteracy to become unmeasurable and difficult to evaluate.

Based on interviews with the fifth-grade teacher, several structural and personal challenges also hinder efforts to develop a more comprehensive multiliteracy assessment. The teacher admitted that time constraints were a major factor, as they had to complete curriculum targets while managing a class with a fairly large number of students. Additionally, the lack of varied assessment instrument examples suitable for the STEAM approach made the teacher tend to return to familiar assessment patterns. Weiser et al. (2022) identified that challenges in developing assessments for integrated science and literacy learning include a lack of teacher support resources and the absence of a systematic approach that can be widely adopted. The teacher at the research site also revealed that they had never attended

specific training on multiliteracy assessment, so their independent learning process had not been able to bridge the gap between ideals and reality in the field.

The absence of a structured multiliteracy assessment rubric has direct consequences on the quality of feedback teachers can provide to students and the accuracy of mapping learning achievements. In STEAM-based learning, rich in collaborative and problem-solving activities, students who have demonstrated good collaboration or critical thinking skills do not receive proportional appreciation because these aspects are not recorded in the assessment. Conversely, students who are still weak in teamwork or reasoning do not receive specific improvement guidance because the teacher lacks clear assessment criteria. Greenstein (2012) asserts that a good rubric not only functions as an assessment tool but also as a means of communicating learning expectations to students. Without an adequate rubric, the learning process loses direction for constructive feedback, and students lose guidance for self-development (Hayati, 2024). This condition ultimately hinders the achievement of true learning objectives, which is to form students who are not only cognitively intelligent but also skilled in collaborating and thinking critically.

Considering the various empirical findings and challenges outlined, the development of a multiliteracy assessment rubric becomes an urgent necessity to be realized in the context of STEAM-based IPAS learning in elementary schools. Weiser et al. (2022) recommend that the development of assessment resources in early grades should include three main components: assessment tasks, scoring rubrics, and teacher support materials. The rubric referred to in this study must be designed to be valid, genuinely measuring what it intends to measure; practical, easy for teachers to use in daily learning; and aligned with the characteristics of the STEAM approach that emphasizes knowledge integration and problem-solving. The presence of such a rubric is expected to help teachers assess students' collaboration, critical thinking, creativity, and communication processes more objectively, systematically, and sustainably without adding excessive administrative burden (Kau & Nurlela, 2024). Thus, rubric development is not merely a response to an existing gap but a pedagogical investment to improve overall learning quality.

This study specifically aims to analyze the urgency of developing a multiliteracy assessment rubric in the context of STEAM-based IPAS learning in grade V of SD Negeri Kemirisewu II Pasuruan. The results of this study are expected to contribute by mapping multiliteracy assessment needs at the elementary school level, particularly concerning the STEAM approach, and offering assessment rubric recommendations that can be directly adapted by teachers in the field to improve the quality of assessment in STEAM-based learning while bridging the gap between curriculum demands and classroom implementation realities.

Methods

This study employs a qualitative approach with a case study design. The choice of a qualitative approach is based on the research objective, which is to analyze the urgency of developing a multiliteracy assessment rubric in the context of STEAM-based IPAS learning in grade V of SD Negeri Kemirisewu II Pasuruan. Creswell & Poth (2016) explain that a qualitative approach allows researchers to explore the meanings individuals or groups ascribe to a social or human problem, with an emerging and flexible research process. In this study, the case study serves as a methodological umbrella guiding the entire data collection and analysis process to remain focused on the predetermined unit of analysis.

Data sources in this study are divided into two categories: primary data and secondary data. Primary data are obtained directly from main sources in the field, including the fifth-grade teacher, fifth-grade students, and all IPAS learning activities occurring in that class. Sugiyono (2016) states that primary data in qualitative research come from informants who possess in-depth knowledge of the context under study, so informants are selected purposively based on specific criteria. Secondary data in this study consist of supporting documents relevant to the research focus, such as teaching modules, attitude evaluation sheets, formative evaluation sheets, and photographic documentation of learning activities available in the initial observation report. The use of secondary data aims to enrich the

researcher's understanding of the research context and triangulate findings obtained from primary data, enabling the researcher to build a more comprehensive and in-depth understanding of assessment practices that are the focus of the study.

Data collection was carried out using three main techniques: non-participant observation, semi-structured interviews, and documentary study. Observations were conducted directly in the classroom during IPAS learning activities, with the researcher acting as an observer not actively involved in the learning process. Rane & Meti (2026) explain that observation in qualitative research aims to capture behaviors, interactions, and events as they occur naturally, allowing researchers to obtain rich and contextual data. Semi-structured interviews were conducted with the fifth-grade teacher using a question guide developed based on multiliteracy assessment indicators, while still providing space for the informant to express their experiences and views broadly. The instruments used in this study included observation guide sheets, interview guidelines, and document review sheets, each developed based on the theoretical framework of multiliteracy assessment. Sugiyono (2016) emphasizes that the instrument in qualitative research is the researcher themselves (human instrument), so data validity heavily depends on the researcher's sensitivity, knowledge, and skill in collecting information in the field.

Data analysis in this study used the interactive model of analysis developed by Miles et al. (2014). This model includes three main components that occur simultaneously and continuously: data reduction, data display, and conclusion drawing and verification.

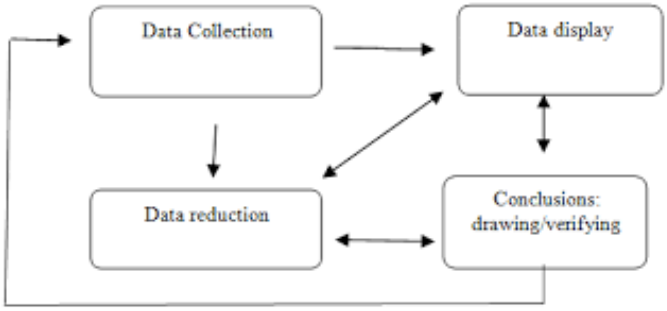


Figure 1. Stages of Qualitative Data Analysis by Miles et al. (2014)

Data reduction was carried out through the process of selecting, focusing, simplifying, and abstracting raw data obtained from field notes, interview transcripts, and supporting documents. Data display was conducted in the form of narrative text, matrices, and charts that facilitate the researcher in seeing patterns of relationships among finding categories. De Sordi (2024) adds that in qualitative data analysis, coding techniques play an important role in organizing data into meaningful thematic categories. The conclusion-drawing process was carried out continuously throughout the research, with constant re-verification of collected data to ensure the validity of findings. To ensure data validity, this study applied source triangulation and technique triangulation strategies, namely by comparing information obtained from observation, interviews, and documentation and checking the consistency of findings among different data sources.

Results and Discussions

1. Results

Based on observation activities conducted directly in the classroom during IPAS learning, with the researcher acting as a non-participant observer, data regarding multiliteracy learning assessment practices were obtained. Observations focused on STEAM-based learning activities, the types of tasks given to students, the teacher's assessment methods, and student responses to

learning activities. Table 1 presents the observation results, including the observed aspects and field findings.

Table 1.
Observation Result

No	Observed Aspects	Observation Results
1	The implementation of the STEAM approach in social studies learning	The teacher has directed students to simple group discussion activities and problem-solving related to environmental phenomena. The teaching modules used have integrated several learning outcomes from other subjects, although the implementation in the classroom still needs to be deepened.
2	The form of assessment used by teachers	The assessment used is still dominated by the assessment of final results in the form of written assignments and evaluations in the form of questions. The assessment of the learning process has not been carried out systematically.
3	Measurement of student collaboration aspects	Collaborative assessments are carried out through general observation without using rubrics or structured observation sheets. Teachers have difficulty distinguishing the level of participation between students in group work.
4	Measurement of students' critical thinking aspects	Teachers tend to only see the truth of the final answer without tracing the reasoning process that students go through. There is no special instrument to measure the critical thinking process.
5	Measurement of student creativity aspects	The creativity aspect has not been the focus of the assessment. Teachers do not yet have a product assessment rubric even though in learning activities students produce a product.
6	Penggunaan instrumen asesmen terstruktur	The instruments used are still limited to attitude evaluation sheets and formative evaluation sheets. Assessment rubrics for the multiliteracy aspect are not yet available and have not been developed by teachers.
7	Giving feedback to students	Teachers occasionally provide verbal feedback, but have not been supported by structured assessment instruments. Feedback has not been specific leading to the development of multiliteracy skills.
8	Student response to learning	Some students appear to be active in group discussions, able to express opinions, ask questions, and cooperate with their peers. However, some students still tend to be passive and rely on more active friends.
9	Relationship of STEAM activities to assessment	STEAM-based learning activities with the assessments used are not fully aligned. Learning already leads to activities that demand

No	Observed Aspects	Observation Results
		multiliteracy skills, but assessments have not been specifically designed to measure those abilities.
10	Teachers' obstacles in the implementation of assessments	Teachers experience limited time and a large number of students, making it difficult to monitor the progress of each student thoroughly. Teachers also do not have examples of varied assessment instruments that are in accordance with the STEAM approach.

Source: processed researcher

IPAS learning in grade V has been designed to align with the STEAM approach, characterized by group discussion activities and problem-solving based on environmental phenomena. However, the assessment practices used by the teacher are still dominated by final outcome assessments in the form of written assignments and test questions. Aspects of collaboration, critical thinking, and creativity have not been systematically measured because the teacher does not have a structured assessment rubric. Collaboration assessment is conducted only through general observation without a clear instrument, while critical thinking is assessed only from the correctness of final answers without tracing students' reasoning processes. The creativity aspect has also not become an assessment focus, even though students produce products in STEAM activities. The available instruments are still limited to attitude and formative evaluation sheets, while a multiliteracy rubric has not been developed. The teacher occasionally provides oral feedback, but it is not specific and is not supported by structured instruments. Some students appear active in discussions and collaboration, but others remain passive and dependent on peers. The alignment between STEAM activities and assessment is not yet harmonious because learning already demands multiliteracy skills, but assessments have not been designed to measure them. The main challenges faced by the teacher include time constraints, a large number of students, and a lack of examples of varied assessment instruments suitable for the STEAM approach.

Based on semi-structured interviews conducted with the fifth-grade teacher and two fifth-grade student representatives at SD Negeri Kemirisewu II Pasuruan, data regarding multiliteracy learning assessment practices were obtained. Interviews were conducted using a question guide developed based on multiliteracy assessment indicators while still providing space for informants to express their experiences and views broadly. Table 2 presents the interview results, including the list of questions and answers from each informant.

Table 2.
Interview Result

No	Question List	Answer		
		Teacher (SFL)	Student (RA)	Student (RA)
1	How do you prepare your social studies learning plan with the STEAM approach?	I have tried to organize learning that leads to STEAM, so I don't just focus on one subject, but I combine it with others so that the children understand better and are not separated.	(Not asked)	(Not asked)

No	Question List	Answer		
		Teacher (SFL)	Student (RA)	Student (RA)
2	What forms of assessment do you usually use in learning science?	For assessment, I still often use a written test, because it is the easiest and fastest. If the observation actually exists, sometimes you don't have time to assess everything in detail.	Usually a written test, sometimes there are group assignments as well.	Often they are told to work on problems, sometimes they are told to make drawings of the water cycle.
3	Have you ever assessed the aspect of student cooperation or collaboration? If so, how?	When it comes to group work, I usually only look at the general picture, who is active, who is not. But there is no special rubric to assess it, so it has not been clearly measured.	The teacher sees who is working together in the group. Sometimes they are asked who participated.	I was usually told to show my hand who was helping. But it was not recorded.
4	Have you ever assessed students' critical thinking skills? If so, how?	To think critically, I actually want to judge, but I'm still confused about how to make the judgment. So usually only seen from the student's answers, not yet to the thought process.	The teacher asked why the answer was, but not always. Sometimes it is only seen as right or wrong.	I was once asked "why did I choose that answer?", but not all friends were asked.
5	Do you have a special rubric to assess student product results?	There is no specific rubric for judging products yet. Usually I only look at the finished product, neat or not, complete or not.	(Not asked)	(Not asked)
6	What are the obstacles that you face in carrying out the multiliteracy assessment?	The obstacle is in time and number of students as well, so it is a bit difficult to assess one by one in detail. In addition, I have also never received any special training on multiliteracy assessment, so I am	(Not asked)	(Not asked)

No	Question List	Answer		
		Teacher (SFL)	Student (RA)	Student (RA)
		still learning on my own.		
7	Have you ever gotten an explanation of how to work well in a group?	(Not asked)	I have been told before, but there is no special value. Usually they are just told to get along.	It is said that it must be divided by tasks. But it was never judged who did what.
8	Have you ever been asked to explain the reason for the answer you gave?	(Not asked)	Sometimes yes, sometimes not. It depends on the teacher.	Ever, but only for a moment. It is not written or assessed.
9	Are you happy with the learning that you are told to discuss and make products like water cycle drawings?	(Not asked)	It's fun, because you can hang out with friends. But unfortunately it is not assessed.	I like it, but I'm also confused about where I got my grades from.
10	What do you think helps you the most in learning IPAS?	(Not asked)	An example was given to the teacher. Same discussion buddy.	Explained slowly. Same being told which one is true.

Source: processed researcher

The interview results show that the teacher has designed STEAM-oriented learning, but assessment practices are still dominated by written tests because they are considered the easiest and fastest. The teacher does not have a specific rubric for assessing collaboration, critical thinking, or student products. Collaboration assessment is conducted only through general observation without systematic documentation, while critical thinking is assessed only from final answers without tracing the reasoning process. The main challenges faced by the teacher include time constraints, a large number of students, and never having attended multiliteracy assessment training.

From the students' perspective, they admitted to often receiving written tests and group assignments, but discussion and product-making activities were not clearly assessed. They had been asked to explain the reasons for their answers, but not all received equal opportunities, and these explanations were not documented as grades. Students felt happy with STEAM-based learning but were confused because their contributions in groups were not measured. They wanted clear examples, detailed explanations, and feedback telling them whether their answers were correct. Overall, the interviews confirmed a gap between the implemented STEAM learning and conventional assessment practices, as well as the lack of a clear assessment system perceived by students.

2. Discussions

a. Gap between STEAM Learning Design and Assessment Practices

The first finding revealed from observations and interviews is the existence of a gap between learning design that is already STEAM-oriented and assessment practices that are still dominated by conventional written tests. The teacher has developed teaching modules integrating several learning outcomes from other subjects, but the assessments used have not moved beyond final outcome assessments in the form of written assignments and test questions. This condition

aligns with the findings of Mawar et al. (2026), which revealed that although the STEAM approach has shown positive contributions to improving students' creative and critical thinking abilities, its implementation still faces challenges such as limited teacher competence and the lack of explicit STEAM integration into national curriculum policies. Furthermore, Sheffield et al. (2024), in a comparative study between Australia and Indonesia, found that core disciplinary fields still tend to be taught separately with little or no integration, even though authentic integrated learning is a more aspirational way of learning. The gap occurring at the research site confirms that the paradigm shift in learning has not been matched by a paradigm shift in assessment, resulting in a misalignment between what is taught and how learning achievements are measured.

b. Unsystematic Measurement of Collaboration Aspects

The second finding indicates that student collaboration has not been systematically measured because the teacher does not have a structured assessment rubric. Collaboration assessment was conducted only through general observation without adequate documentation, making it difficult for the teacher to distinguish levels of participation among students in group work. Greenstein (2012) asserts that assessing 21st-century skills, including collaboration, requires rubrics and instruments capable of documenting the collaborative process objectively, not merely general assessments based on the teacher's impression. This is reinforced by Weiser et al. (2022), who state that developing assessment resources in early grades must include three main components: assessment tasks, scoring rubrics, and teacher support materials. Without an adequate rubric, collaboration assessment loses accuracy and consistency, so the potential of STEAM-based learning to develop collaboration skills becomes sub-optimally measurable. This finding is also relevant to the research results of Sinaga et al. (2024), which show that group discussion methods are effective in developing critical thinking skills while building students' social interactions, but this effectiveness heavily depends on the availability of clear assessment rubrics.

c. Unsystematic Measurement of Critical Thinking and Creativity Aspects

The third finding reveals that students' critical thinking skills have not been specifically measured because the teacher lacks appropriate instruments. The teacher tends only to look at the correctness of final answers without tracing the reasoning process students go through to reach a particular conclusion. In fact, as explained by Marwiyah (2022), the STEAM approach holistically contributes to the development of students' critical thinking skills, but developing indicators such as testing hypotheses and evaluating information still requires more intensive mentoring and critical thinking rubrics with clear indicators. Greenstein (2012) emphasizes that assessing critical thinking skills must be based on rubrics capable of capturing the reasoning process, not just the final outcome. Similarly, for the creativity aspect, the teacher at the research site does not have a product assessment rubric, even though students produce a work in STEAM activities. Mawar et al. (2026), in their systematic literature review, found that innovative media such as project-based modules and integrative teaching materials can increase student engagement, but without being matched with appropriate assessments, these positive impacts are difficult to document.

d. Teacher Challenges in Implementing Multiliteracy Assessment

The fourth finding identifies several challenges faced by the teacher in implementing multiliteracy assessment, including time constraints, a large number of students, and a lack of specific training on multiliteracy assessment. The teacher admitted to never having attended training that specifically discusses multiliteracy assessment, so their independent learning process has not been able to bridge the gap between ideals and reality in the field. This aligns with the findings of Ahmad Dani et al. (2025) that the main challenges of STEAM implementation include limited teacher competence, lack of technological facilities, and the absence of explicit STEAM integration into national curriculum policies. Other research discussing integrated science and literacy assessment also reveals that although the idea of incorporating literacy into science curricula is growing, this field still lacks guidance on assessing proficiency in literacy-integrated science learning (Cesljarev & Akerson, 2022). Therefore, it is crucial for teachers to receive support

in creating shared learning objectives and assessments to ensure proper interdisciplinary curriculum alignment.

e. Students' Perspectives on Assessment Practices

The fifth finding, derived from interviews with students, shows that they perceive a lack of clarity in the applied assessment system. Students admitted to enjoying learning that involves discussions and product-making, but they felt confused because these activities were not clearly assessed. Some students had been asked to explain the reasons for their answers, but not all received equal opportunities, and these explanations were not documented as grades. Sheffield et al. (2024), in their study, found that a direct approach through artifact-making successfully engaged students in STEM learning, and all surveyed students succeeded in making products and collaborating efficiently in groups. However, this success needs to be documented through transparent assessment so students understand how their contributions are evaluated. This finding is also supported by research from Nugroho & Wahyudi (2025), which shows that improving students' critical thinking skills must be based on the integrated results of observation, written tests, and product assessments.

f. Implications for the Development of a Multiliteracy Assessment Rubric

Based on all the findings presented, it can be concluded that developing a multiliteracy assessment rubric is an urgent necessity in the context of STEAM-based IPAS learning in grade V of elementary school. Greenstein (2012) asserts that a good rubric not only functions as an assessment tool but also as a means of communicating learning expectations to students. Weiser et al. (2022) recommend that in developing assessment resources, attention must be paid to the challenges and opportunities related to the role of literacy in assessing multidimensional science learning, as well as considering aspects of equity and inclusion in assessment design. The rubric developed must be capable of measuring the four pillars of multiliteracy—collaboration, critical thinking, creativity, and communication—simultaneously, in accordance with the characteristics of the STEAM approach that emphasizes knowledge integration and problem-solving. Thus, a multiliteracy assessment rubric not only addresses the existing gap but also becomes a strategic instrument for improving the holistic quality of IPAS learning.

Conclusion

Based on the research results described in the previous section, it can be concluded that the development of a multiliteracy assessment rubric in the context of STEAM-based IPAS learning in grade V of SD Negeri Kemirisewu II Pasuruan is an urgent necessity. This conclusion is based on three main findings that have been analyzed in depth.

First, a significant gap was found between the learning design, which is already STEAM-oriented, and assessment practices that are still dominated by conventional written tests. The teacher has developed teaching modules integrating various learning outcomes from other subjects, but the assessments used have not moved beyond final outcome assessments in the form of written assignments and test questions. This condition results in a misalignment between learning activities that demand multiliteracy skills and assessment instruments not designed to measure those skills.

Second, essential aspects of multiliteracy such as collaboration, critical thinking, and creativity have not been systematically measured because the teacher lacks a structured assessment rubric. Collaboration assessment was conducted only through general observation without adequate documentation. Critical thinking skills were assessed only from the correctness of final answers without tracing students' reasoning processes. The creativity aspect has also not become an assessment focus, even though students produce a product in STEAM activities. The teacher also does not have a product assessment rubric to objectively evaluate the quality of student work.

Third, the teacher faces various challenges in implementing multiliteracy assessment, including time constraints, a large number of students, a lack of varied assessment instrument examples, and never having attended specific training on multiliteracy assessment. From the students' perspective,

they perceive a lack of clarity in the applied assessment system. Students admitted to enjoying learning that involves discussions and product-making, but they felt confused because these activities were not clearly assessed.

Thus, the urgency of developing a multiliteracy assessment rubric at the research site is very high because the rubric will function as an instrument bridging the gap between the demands of 21st-century learning and the reality of classroom assessment practices. The rubric developed must meet the criteria of being valid (measuring what it intends to measure), practical (easy for teachers to use in daily learning), and aligned with the characteristics of the STEAM approach that emphasizes knowledge integration and problem-solving. The presence of this rubric is expected to help teachers assess students' collaboration, critical thinking, creativity, and communication processes more objectively, systematically, and sustainably, so that the quality of STEAM-based IPAS learning can be holistically improved.

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