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IMPLEMENTATION OF SIMPLE PRACTICAL ACTIVITIES IN SCIENCE LEARNING (CASE STUDY IN THREE ELEMENTARY SCHOOL IN BANDA ACEH)

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Abstract

The Independent Curriculum calls for students to actively participate in science classes through simple practicum exercises, However, the problem is that not all schools carry out simple practicum exercises in science learning. The purpose of this research is to outline the preparation, execution, and challenges of basic hands-on scientific learning activities in three Banda Aceh elementary schools. The study employed a case study design and a qualitative methodology. Teacher interviews, observation, and document analysis were used to gather data, which was then descriptively evaluated. The subjects of this study took three teachers from three different schools, namely SD Negeri 35 Banda Aceh, SD Negeri 54 Banda Aceh and SD Negeri 46 Banda Aceh. The data analysis technique used was data triangulation.The findings demonstrated how well-organized and in line with learning objectives the practical preparation was. Students were allowed to actively participate in the actual implementation and acquire science process skills. Time management and the classroom were the main areas of difficulty. It has been demonstrated that straightforward practical exercises improve students' comprehension of scientific ideas in a more tangible and significant way.

Keywords: Simple Practicum, IPAS, Merdeka Curriculum, Elementary School

Abstrak

Kurikulum Independen menyerukan agar siswa berpartisipasi aktif dalam kelas sains melalui latihan praktikum sederhana, namun permasalahannya tidak semua sekolah melakukan latihan praktikum sederhana dalam pembelajaran sains. Tujuan penelitian ini adalah untuk menguraikan persiapan, pelaksanaan, dan tantangan kegiatan pembelajaran sains praktik dasar di tiga sekolah dasar di Banda Aceh. Studi ini menggunakan desain studi kasus dan metodologi kualitatif. Wawancara guru, observasi, dan analisis dokumen digunakan untuk mengumpulkan data, yang kemudian dievaluasi secara deskriptif. Subjek penelitian ini menggambil tiga guru dari tiga sekolah yang berbeda yaitu SD negeri 35 Banda aceh, SD Negeri 54 Banda Aceh dan SD Negeri 46 Banda Aceh adapun teknik analisis data yang digunakan triangulasi data.Temuan menunjukkan betapa terorganisir dan selarasnya persiapan praktik tersebut dengan tujuan pembelajaran. Siswa diizinkan untuk berpartisipasi aktif dalam pelaksanaan aktual dan memperoleh keterampilan proses sains. Manajemen waktu dan ruang kelas merupakan area kesulitan utama. Telah ditunjukkan bahwa latihan praktik yang sederhana meningkatkan pemahaman siswa tentang ide-ide ilmiah dengan cara yang lebih nyata dan signifikan.

Kata kunci: Praktikum Sederhana, IPAS, Kurikulum Merdeka, Sekolah Dasar

INTRODUCTION

Curriculum of Natural and Social Sciences (IPAS) in the Independent Curriculumaims to combine the development of students' scientific process skills with their understanding of science and social topics. (Syarifuddin et al., 2025) In addition to mastering factual knowledge, students are required to acquire a scientific attitude including curiosity, critical thinking, and problem-solving abilities through IPAS learning (Rosyida, 2025; Syarifuddin et al., 2025). To make the learning process relevant and aligned with the developmental characteristics of elementary school students, IPAS learning requires an active, contextual, student-centered approach.

However, lecturing and memorization techniques still dominate IPAS teaching in practice (Yusron, 2024), which makes students more passive and with fewer opportunities to learn through practice. Low student engagement, few opportunities to participate in scientific processes, and difficulty understanding abstract science concepts are consequences of this situation (Syahrial, 2025). In reality, the characteristics of science education include the scientific method, which involves observation, experimentation, analysis, and conclusion. (Aulya et al., 2025; Kusumawati, 2022) Effective science teaching in elementary schools should facilitate exploration of the surrounding environment through observation, simple experiments, and other direct activities.

Conceptual knowledge and procedural skills are two main components science education, according to the Independent Curriculum. According to the National Agency for Standards in Education, Curriculum, and Assessment (2022), process skills include the ability to observe, ask questions, design investigations, analyze data, evaluate, and communicate results. These components require practical training or scientific research to be developed to the maximum through theory-based learning alone (Kemendikbud, 2022). Consequently, simple practicum training is very important for science education in elementary schools. Students can test theories, observe phenomena, evaluate data, and draw conclusions based on real experiences through hands-on work, an instructional approach that gives them the opportunity to truly experience the scientific process (Darmayanti et al., 2020). Laboratory practice also serves as a bridge between theory and practice so that the concepts learned become more meaningful (Haryati, 2021).

Practical work in the context of elementary schools does not have to use equipment laboratories that are complex, but can be done with simple tools and materials available in the surrounding environment (Imam & Hefni, 2021), The practical activity referred to here is an activity integrated into the delivery of material in science learning where this practical activity includes aspects of observing, questioning, designing, processing, evaluating, reflection and finally communicating results; these aspects are teacher skills in the implementation of science learning as outlined in the Independent Curriculum.

The urgency of implementing simple practicals in science teaching is increasing considering the learning achievement demands that require students to be able to understand natural phenomena in a contextualized way (Diana et al., 2023). Materials such as changes in states of matter, forces, energy, the water cycle, and the growth of living beings are highly relevant to be studied through direct experience (Ministry of Education, Culture, Research, and Technology, 2022). (Mei & Nurfaturrahmah, 2023) Without practical activities, learning risks becoming abstract, meaningless, and unable to develop students' scientific process skills optimally. Simple practice also plays a role in fostering scientific attitudes, such as precision, honesty, cooperation, and curiosity, which are an important part of science learning in elementary schools (Mera & Firman, 2023). Thus, practical work is not only an add-on to learning but the core of the meaningful IPAS learning process.

Many previous studies have shown the beneficial effects of basic laboratory activities on science learning simple practicum. Simple experiments have been shown to improve conceptual understanding, student engagement, and critical thinking abilities (Syahrial, 2025). According to (Farikhatun et al., 2023), elementary school students' scientific attitudes, especially their curiosity, are enhanced with an experimental approach. Meanwhile, (Darmayanti et al., 2020) show how basic laboratory exercises using readily available materials can encourage the development of abilities. The science process includes observation, questioning, analysis, and communication of results. These findings support the idea that basic laboratory work is a relevant, beneficial, and appropriate teaching method for elementary school students. In other words, previous research generally affirms the value of incorporating basic laboratory work into science education and scientific studies (Kementerian Pendidikan Riset dan Teknologi, 2022). However, in the local context of Banda Aceh, basic practical work has not been executed effectively in all schools, which may impede the attainment of science learning objectives, especially when it comes to the development of students' scientific attitudes and science process abilities. Science education will likely lose its significance and be unable to meet the learning objectives specified in the Independent Curriculum if this condition continues

Nevertheless, most previous research has focused more on the impact of practical work on learning outcomes, scientific attitudes, or students' process skills. The aspects of planning and implementing practical work in the field have received relatively less attention. In fact, the success of practical work is not only determined by its benefits for students, but also by the teacher's readiness to design and carry out these activities. (Mitha et al., 2025) emphasize that practical work planning should include formulating objectives, selecting materials, preparing work steps, preparing tools and materials, as well as assessment instruments. (Darmayanti, 2020) adds that a good practical guide should include objectives, theoretical foundation, procedures, observation sheets, and evaluation so that practical activities are well-directed and meaningful. And there has not been much research that has examined in depth the planning, implementation and obstacles of simple practicals in elementary schools.

In addition to planning, the implementation of practical work also requires the active role of teachers as facilitators and motivators. Teachers must guide students, ensure safety, manage time, and create a conducive learning environment (Fitri et al., 2022). However, many teachers face obstacles in conducting practical work, such as limited facilities, tight time allocation, lack of skills in designing simple practicals, and difficulties in managing the class when students conduct experiments (Syahrial, 2025). These obstacles often result in practical work not being carried out optimally or even not being conducted at all, so the learning objectives of IPAS have not been fully achieved.

Preliminary research based on field data shows that investigative activities are not regularly implemented in all elementary schools in Banda Aceh. While some institutions still use traditional techniques, others have started to introduce simple practicum work. This diversity reflects variations in school support, teacher readiness, and understanding of the requirements of the Independent Curriculum. To address the implementation of simple practicum work in science education at elementary schools in Banda Aceh, this research is very important and relevant, especially regarding the planning, implementation, and challenges faced by instructors when conducting practical activities. This data was obtained through observation, interviews, and documentation, which was then analyzed descriptively qualitatively and formed into percentages, and it should be noted that this research is limited to three elementary schools in Banda Aceh and is a case study, not general.

In this context, the aim of this research is to describe how simple practicum activities in science education are planned, evaluate how they are implemented in the classroom, and identify the challenges faced by teachers when implementing simple practical work in Banda Aceh elementary schools. The findings of this study are expected to provide theoretical benefits for future research on science education as well as practical benefits for educators and educational institutions in creating and implementing more efficient, relevant, and curriculum-appropriate practical-based teaching in accordance with the requirements of the Independent Curriculum.

METHOD

This research describes the planning, implementation, and limitations of simple practicum science learning activities in Banda Aceh elementary schools using qualitative descriptive techniques and a case study design. This method was chosen because it allows researchers to fully understand events in their natural environment (Poltak & Robert, 2024). Students act as supporting informants, while fourth-grade science teachers in three elementary schools using the Independent Curriculum serve as research subjects. Through document analysis, observation, and interviews, the researcher acts as the main instrument and actively participates in the data collection process (Sugiyono, 2022).

Data on practical work planning were obtained from the analysis of teaching modules, LKPD, as well as tools and practical materials, then analyzed in the form of percentage completeness of components. Data on the implementation of practical work were collected through classroom observation using observation guidelines and analyzed descriptively in the form of percentage of activity implementation. Data on obstacles to practical work implementation were obtained from teacher interviews and analyzed by grouping answers based on obstacle themes, such as limited facilities, time, and classroom management, then presented in descriptive form.

In this study, descriptive qualitative data analysis was conducted through the stages data reduction, data presentation, and drawing conclusions. Data reduction is carried out by identifying and focusing information from observations, teacher interviews, and document. The proportion of simple practicum tasks implemented is used to analyze data on planning and implementing the practicum before presenting the reduced data. Meanwhile, information about constraints in practicuum activities is examined by classifying interview responses according to the evolving constraint themes. The results are then presented descriptively to provide a summary of how basic practicum is used in science education. To ensure the validity of the study findings, conclusions are also reached by thoroughly analyzing all data and confirming them using source and method triangulation.

The subjects of this study consisted of three teachers from each school, including one classroom teacher. The following are the teacher code categories from the three schools studied.

Table 1. School Name and Teacher Code

School Name	Teacher Code
A	G1
B	G2
C	G3

RESULTS AND DISCUSSION

Based on the results of the study conducted at three elementary schools in the city Banda Aceh related to the implementation of simple practicum activities in IPAS. learning.(Haryati, 2021) Explains that the practicum method is a learning process where students experience and do it themselves, follow the process, observe objects, analyze, prove, and conclude about an object, condition, or process. (Wati et al., 2025) This approach not only aims to improve understanding of science concepts but also to develop essential science process skills for students. Practicum activities allow students to be more enthusiastic in learning and are also encouraged by students' curiosity, making the teaching-learning process more effective.

Based on document analysis, observations, and interviews conducted in the three elementary schools, the findings are as follows:

1. **Analysis of Simple Practicum Planning documents**

Based on document analysis findings about the use of basic practicum in three In Banda Aceh elementary schools, especially in grade IV, all learning tools have met usage requirements. The learning objectives developed align with Learning Outcomes (PPK). According to the Education Standards, Curriculum, and Assessment Agency (2022), there are two components of learning outcomes in science education: knowledge and skills. The knowledge component can be obtained through material delivery, while the skills component can only be obtained by students through basic practicum or scientific investigation. Therefore, the skills elements require a practicum, especially in the aspects of concept understanding and science process skills. The materials chosen for the practicum are also deemed relevant and feasible to practice simply using readily available tools and materials.

In addition, the planning of practicum activities has been completed with simple procedures or investigation steps. The practicum instructions are clearly, safely, and appropriate to the characteristics of elementary students. The worksheets used also support the development of science process skills and are accompanied by assessment forms covering scientific attitudes and students' practicum results. In general, the learning documents show teachers' readiness to design and implement simple practicum in IPAS learning.

PRAKTIKUM ENERGI ELASTIS

Bacalah perintah dibawah ini dengan cermat!

A. Alat dan Bahan
- Karet gelang
- Bola kertas kecil
- Pensil atau sedotan sebagai penahan
- Penggaris/meteran
- Kertas atau buku catatan

B. Petunjuk Keselamatan
- Jangan menarik karet gelang terlalu keras agar tidak mengenai wajah.
- Arahkan lontaran bola kertas ke ruang kosong, bukan ke teman.
- Gunakan karet gelang dengan hati-hati.

C. Langkah-Langkah Percobaan
Percobaan: Katapel Sederhana Energi Elasti
1. Buat bola kecil dari kertas.
2. Pegang dua pensil sejajar, kemudian kaitkan karet gelang pada kedua ujungnya (seperti katapel sederhana).
3. Masukkan bola kertas ke tengah karet gelang.
4. Tarik bola kertas sejauh 2 cm, lalu lepaskan. Ukur jarak lontar
5. Ulangi percobaan dengan tarikan 4 cm dan 6 cm.
6. Catat semua hasil pada tabel.
7. Bandingkan jarak lontaran dari setiap tarikan.

Figure 1. Example of a practical instruction

The indicators analyzed in this study relate to the appropriateness of the material with the practicum, clear practicum instructions, availability of tools and mater ials, inclusion of scientific inquiry activities, the worksheets used support process skills and there is an assessment of scientific attitude/practical results, these indicators are analyzed and presented as percentages as shown below. Here are the results of the document analysis in the simple practicum planning:

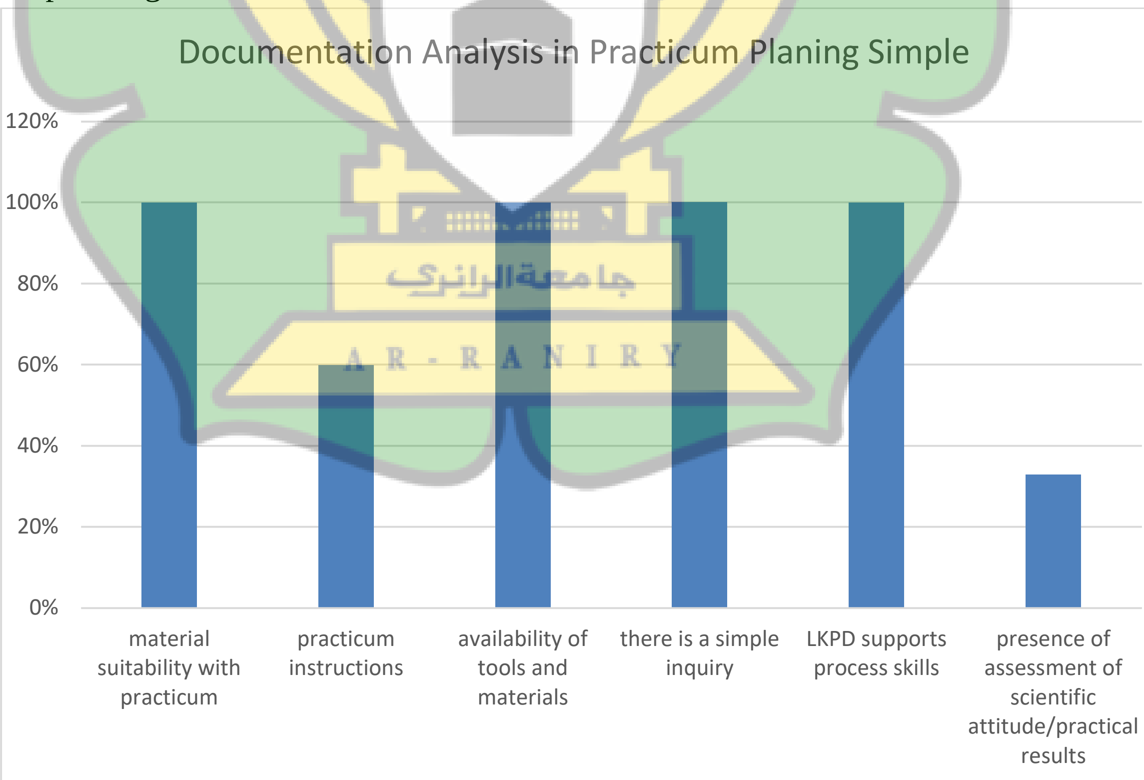

Figure 1. Total Percent of Planning in Conducting Simple Practicum

Based on the Graph of Documentation Analysis in Practicum Planning Simple, it appears that most planning components have been very well fulfilled. The material's suitability with the practicum, presence of simple material investigations, the existence of simple material investigations, the availability of tools and materials that are easy to find, availability of tools and materials that are easy to find, and LKPD that supports process skills all show a 100% percentage. This indicates that structurally and conceptually, the practicum planning has been designed in line with the curriculum and the expected learning objectives. A good plan is the main foundation in implementing effective practica because it helps teachers and learners understand the direction and objectives of the learning activities (Trianto, 2017).

However, the graph also shows that clear practicum instructions only reaching 66%, at school A there is an emergence of indicators of clear practicum instructions, while at school B there is no apparent emergence of indicators stating the clarity of practicum instructions, and at school C there is an emergence of indicators showing clarity in practicum instructions, whereas in the aspect of assessment of scientific attitude and practicum results it is relatively low, about 33%, at school A there is an emergence of indicators of assessment of scientific attitude/ practicum results, at schools B and C there is no emergence of indicators related to such assessment. This finding indicates that although planning has covered goals and materials, the evaluation components and operational guidelines for practicums have not been formulated optimally. In fact, clear instructions and assessment of scientific attitude are very important in practicums because they guide student activities and measure learning processes and outcomes comprehensively. Weakness in this aspect can affect the suboptimal achievement of students' scientific process skills.

2. **Results of Observation of Simple Practicum Implementation**

Based on observation results, the implementation of simple practicum is at category good. Teachers are able to carry out learning activities using practicum activities; the implementation of practicum activities has been equipped with simple procedures or investigation steps. Tools and materials are also easy to find and already in accordance with the taught material, (Widayanti & Yuberti, 2018) The use of laboratory equipment in science learning can facilitate students' understanding of science concepts, so tools and materials are very needed in implementing practicums. Practicum instructions are also conveyed clearly enough and in accordance with the characteristics of elementary school students.

Practicum in science learning in elementary schools plays an important role in Practica in science education at elementary schools plays an important role in training students' process skills (Mera & Firman, 2023), such as observing, measuring, classifying, drawing conclusions, and communicating results. Therefore, the practicum process not only helps students understand a certain material but also actively involves students in the classroom. Scientific process skills appear to develop during the practicum. Teachers play an active role in guiding, facilitating, and motivating students during practicum activities. (Fitri et al., 2022) Teachers who act as facilitators not only design learning practices such as practicums to align with learning objectives and student characteristics but also create a classroom environment that supports. In this role, teachers ensure the availability of devices, teaching materials, and approaches that support students' active engagement.Furthermore, the aspect of occupational safety also receives good attention, where teachers supervise the use of tools and materials to keep it safe (Susanti, 2024).

Figure 2. Implementation of Practical Activities

During observations at three elementary schools in Banda Aceh, each schools conducted different practicals; during observations at School A they were doing a water cycle practicum, at School B they were doing a practicum on elastic energy, and at School C they were practicing about the forces around us. Each school has its own teaching method in conducting the practicums. The activities in each school are described below:

a. Implementation of a simple practicum at School A starts with the teacher explaining the learning objectives and practicum objectives, which are to understand the occurrence of the water cycle.

   The teacher then introduces the tools and materials used, namely a glass, warm water, and ice cubes, and explains safety rules during the practicum. However, one group did not receive complete tools due to the shortage of one glass. Next, students are divided into small groups to be actively involved in the activity. In the execution stage, students are asked to pour warm water into the glass, then cover the top of the glass with ice cubes. Students observe changes inside the glass, especially the appearance of steam and water droplets on the glass walls. During the observation process, the teacher moves around to guide students, direct observation focus, and provide prompting questions so that students can relate the experiment results to the concept of the water cycle, such as evaporation and condensation. After the observation activity is completed, students are asked to record observation results on the provided worksheet and discuss them with their group. The teacher then facilitates a class discussion by inviting students to present the observation results and to summarize the processes occurring in the experiment. In the closing stage, the teacher reinforces the material by relating the practicum results to the concept of the water cycle in daily life, and emphasizes that the experiment is a simple depiction of the evaporation and condensation processes in the water cycle. The practicum ends with a brief reflection and packing up tools and materials by students under the teacher's supervision, but because time for the practicum was too short, students' break time was shortened a little to complete the practicum.

b. The implementation of simple practicum activities at School B began with the teacher explaining the learning objectives and the purpose of the practicum, which was to understand the concept of elastic energy.

The teacher introduced the tools and materials, namely two pencils and a rubber band, and explained the rules during the activity. Students were divided into several small groups so that each group could take turns conducting the practicum. During the implementation stage, students assembled the pencils and rubber band into a simple slingshot, then pulled and released the rubber band to observe the changes that occurred. Students observed that the stronger the pull on the rubber band, the greater the elastic energy produced. The teacher was quite active in guiding the practicum and directing students in making observations. After the practicum was completed, students recorded their observations and presented the results of their discussions, then the teacher and students drew conclusions about elastic energy. However, in preparing the tools and materials, especially the rubber bands, the teacher asked students to look for them in the school yard, so some students did not get rubber bands and the learning time also became more limited due to the process of searching for the required rubber bands.

c. The implementation of simple practicum activities at School C began with a brief explanation from the teacher about the topic of muscular force and frictional force.

The practicum was carried out using objects available in the classroom, such as tables, chairs, and doors, without using special tools. Students were divided into groups. During the implementation stage, students were asked to push tables, chairs, and doors to feel the presence of muscular force and frictional force. Some students still needed guidance from the teacher in making observations. The teacher provided general guidance, but not all groups received equal assistance, so students were not orderly in making observations. After the activity was completed, students presented their observations orally, then the teacher helped conclude the influence of muscular force and frictional force on the movement of objects in everyday life.

The three schools' approaches to practice implementation varied, according to the study's findings. Despite still being limited by time and resources, School A showed the finest readiness with thorough preparation, organized execution, and evaluation. Although School B was in the acceptable category, the planning was subpar since there were insufficient tools, unclear instructions, and assessments, which led to inefficient learning. Due to inconsistent teacher supervision, subpar classroom management, and a lack of practical evaluation, School C was ranked the worst. Clear instructions, active instructor participation, equipment and material preparation, and careful planning all contributed to practitioners' success. The biggest challenges were a lot of pupils, little time, inadequate planning, and restricted equipment..

The indicators observed during the implementation include how the teacher explains the purpose of the practicum, prepares the tools and materials, provides clear work steps, includes process skills activities, the teacher's role during the practicum, time and class management, discussion of practicum results, and finally, the teacher supervises practicum safety. From these implementation indicators, the percentage of their realization in the implementation of practicum activities can be seen simple (Dewi, 2025).

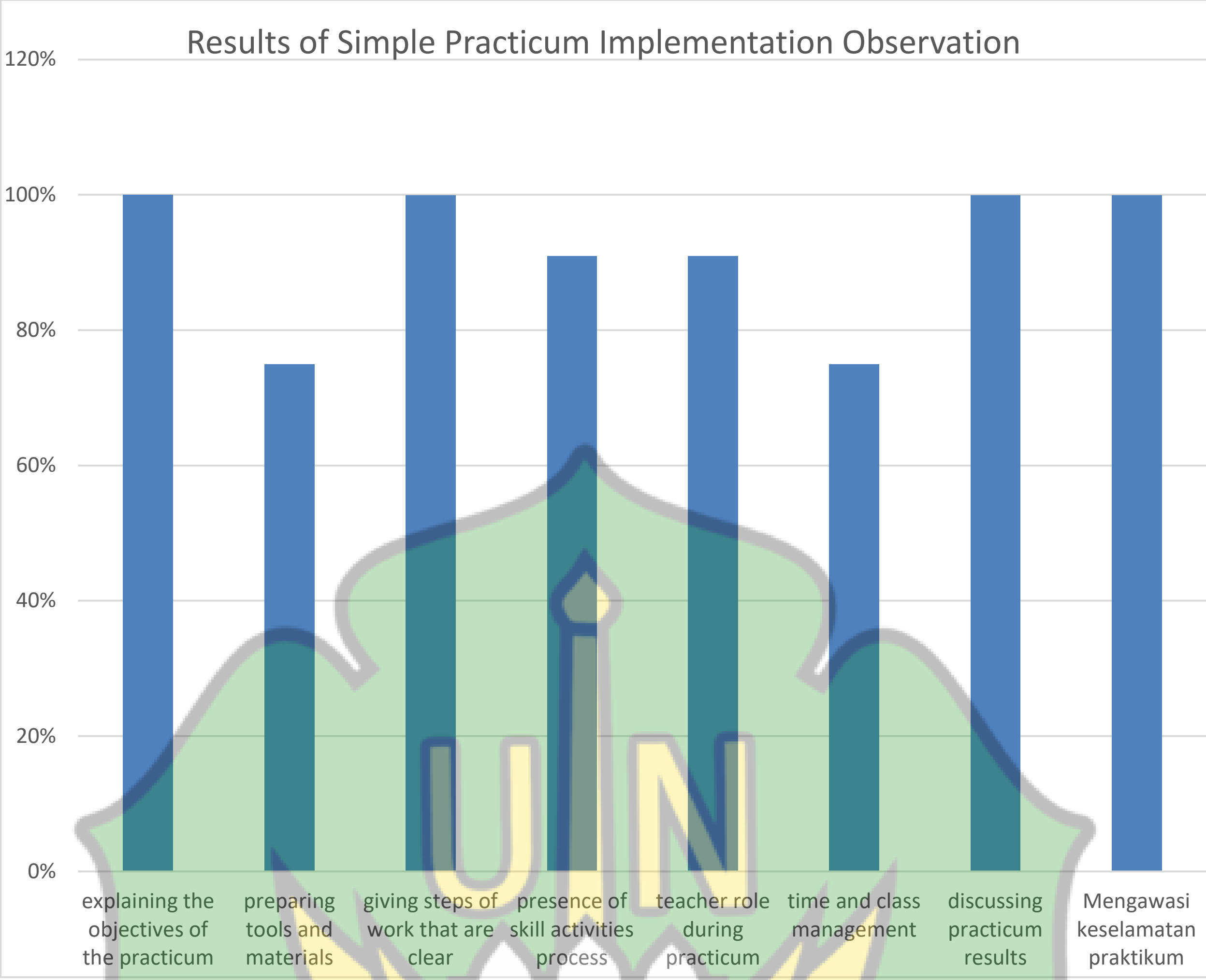

Figure 3. Observation Results in the Implementation of Practicum Activities

From the graph of the results of the Simple Practicum Observation, it shows that the practicum in class runs relatively well. The teacher consistently explains the practicum objectives, provides clear steps of work, invites students to discuss practicum results, and supervises safety during activities, all reaching 100%. This reinforces the teacher's role as a facilitator and director of practicum activities, as well as ensuring student safety during the learning process. Active teacher involvement in practicum has proven capable of increasing the effectiveness of practice-based learning (Riska et al., 2024).

Nevertheless, there are several aspects of implementation that still need improvement, such as the preparation of tools and materials and time and class management, which are around 75%. In the preparation of tools and materials at School A it shows its success, at School B it reaches 75%, and at School C it only reaches 50%. Then in time and class management, Schools A, B, and C show 75% in the ability to manage time and class. This percentage shows that there are still technical and managerial constraints during practicum, such as time limitations or readiness of facilities. In fact, good time and class management greatly determines the smoothness of practicum and achievement of learning objectives, especially in activities that require students' science process skills (Okdiyansyah & Abdul, 2024). Therefore, simple practicum activities must be prepared thoroughly to achieve the learning objectives.

3. Interview results Related to Constraints in the Implementation of Simple Practicum

The interview results show that teachers face a number of difficulties in carrying out practical tasks related to their education. Teachers say that large class sizes, lack of equipment and supplies, and limited learning time are the most frequent constraints faced during practicum. The teacher interview results are explained in the following description.

a. Limitations of Practicum Tools and Materials

Some teachers expressed that the limitations of tools and materials for practicum become the main obstacles that most often arise in carrying out simple practicum activities, as stated by the teachers that:

"The availability of practicum tools and materials at school is still very limited, so that not all students can participate directly in the practicum activities" (G2&G3)

From the teachers' answers above, it shows that teachers still find it difficult to prepare tools and materials because they are not provided at the school, but some teachers also state that tools and materials for simple practicum are easily obtainable without school assistance, (Poltak & Robert, 2024) reinforcing that simple practicum activities in elementary schools only require tools and materials available nearby. The following are teachers' answers regarding easily found tools and material:

"for tools and materials when carrying out simple practicum activities fairly easy to find and I bring tools from home, for example, like the practicum that has been done, we only use glassware, warm water and ice cubes. To observe the water cycle"(G1)

From the teachers' answers above, it shows that practicum activities are not entirely constrained by tools and materials, because the needed tools and materials are fairly easy to obtain around, and the practicum can still be carried out even without assistance or support of tools and materials from the school..

In conclusion, several teachers still have difficulty preparing the tools and materials that required for basic practicum activities, which hinders science learning. On the other hand, practicum activities have a significant impact on students' process skills, which are a requirement of the independent curriculum in the process skills element. To adopt practicum activities in science education so that students actively participate in the learning process, some teachers, however, do not mind if the teacher brings the tools and materials needed for the practicum from home. Essentially, the availability of adequate instruments and materials that meet requirements is crucial for implementing practicum activities (Dewa & Wayan, 2025).

b. Limited Learning Time

Limited time allocation becomes one of the constraints in carrying out simple practicum activities. As the teachers have stated:

"Limited time allocation becomes a constraint often faced in carrying out simple practicum activities, because the available time is often not enough for the preparation, implementation, and evaluation stages of the practicum"(G1, G2, G3).

From the three teachers' answers above, it states that the often-encountered obstacle that arises when carrying out practicum activities is the insufficient time to prepare, implement, discuss, and draw conclusions. This causing the practicum to be conducted in a rush and providing less opportunity for students to deeply understand the process and results of the experiment.

c. Large number of students

The relatively large number of students in one class also affects the smooth implementation of the practicum. This is in line with the results of teacher interviews as follows:

"A large number of students in one class makes the supervision process difficult during the practicum, especially in ensuring that students follow the practicum steps correctly" (G1&G2).

From the teacher's opinion above, the teacher expressed that they experience difficulty in controlling all students during the practicum activities due to the excessive number of students. Some teachers also admitted difficulty in conducting simple practicum activities for almost the same reasons as the previous teacher, stating that:

"The large number of students causes limited interaction between teachers and students during the practicum, so guidance cannot be given evenly" (G3)

From the teacher's opinion above, it is stated that the teacher finds it difficult to interact with all students, which causes the guidance given to all students to be uneven, whereas(Avinindy et al., 2023) the teacher's role in guiding and managing the class during the practicum is an important factor in the success of the activity.

In conclusion, the large number of students in one class becomes the main obstacle in the implementation of simple practicums because it makes it difficult for teachers to supervise and provide guidance evenly. This condition limits teacher-student interaction, making the practicum less optimal. Therefore, managing the number of students and effective classroom management strategies need to be considered to improve the quality of simple practicum implementation.

Basically, simple practicum activities in IPAS learning should be carried out through careful planning, adequate availability of tools and materials, as well as effective time and class management. Ideally, the practicum provides opportunities for all students to be actively involved in every stage of science process skills, from observing, questioning, conducting experiments, processing results, to communicating findings. The teacher acts as a facilitator who guides the practicum, ensures work safety, and provides equal guidance to all students (Diana et al., 2023). In addition, the practicum should be equipped with clear work instructions and assessments that include scientific attitudes and practicum results, so that the learning process and outcomes can be optimally measured. However, based on research findings, these ideal conditions have not been fully realized due to limited tools and materials, limited time allocation, and a relatively large number of students, so the practicum implementation has not been optimal.

Based on the results of document analysis, observation, and interviews, there are differences in the implementation of simple practicums in IPAS learning at the three schools studied. School A shows better readiness compared to Schools B and C, especially in terms of planning, as it is equipped with clear learning objectives, detailed practicum instructions, and assessments of scientific attitudes and practicum results. Meanwhile, School B does not yet have clear practicum instructions and does not include scientific attitude assessments, while School C already has fairly clear practicum instructions but is not yet equipped with scientific attitude assessments and practicum results. Differences are also seen in the implementation of practicum in class, where School A is able to manage practicum activities more orderly and effectively, School B conducts practicum with limited readiness of tools and materials, and School C faces the greatest obstacles in preparing tools and materials so that student involvement is not yet optimal.

CONCLUSION

According to studies, fundamental practicals are essential to scientific education in primary schools because they actively involve students and provide them a more tangible and significant understanding of the material. Teachers in Banda Aceh's primary schools often use practical planning that considers student characteristics and is in line with the Independent Curriculum's learning objectives. Teachers who actively assist students in observing, experimenting, and discussing the outcomes of their experiments are thought to be doing a good job of practical application. However, there is still a need for development in a number of areas, most notably the creation of more precise practical rules and evaluation techniques that prioritize scientific attitudes and experimental findings..

According to studies, fundamental practicals are essential to scientific education in primary schools because they actively involve students and provide them a more tangible and significant understanding of the material. Teachers in Banda Aceh's primary schools often use practical planning that considers student characteristics and is in line with the Independent Curriculum's learning objectives. Teachers who actively assist students in observing, experimenting, and discussing the outcomes of their experiments are thought to be doing a good job of practical application. Nonetheless, there is still a need for development in a number of areas, most notably the creation of more precise practice criteria and evaluations that prioritize scientific attitudes and practice outcomes.

According to the research's conclusions, educators should become more adequate at creating and carrying out basic practices that are productive. This includes creating clear work procedures, controlling class time, and evaluating students' scientific attitudes and process abilities. In order to guarantee the best practice activities, teachers are also encouraged to be more inventive in their use of basic equipment and materials based on the surrounding environment. In the meantime, from the standpoint of school policy, more organized assistance is required in the form of setting up infrastructure and facilities for basic practices, allotting sufficient time for learning, and planning teacher training or workshops. In order to consistently enhance the quality of scientific education, schools must also support the creation of organized practice guidelines that serve as a guide for practice-based learning.

REFERENCES

Aulya, N. P., Indah, R. A., & Novi, E. (2025). Pengenalan asal usul kehidupan praktikum IPA sederhana bagi siswa SD Muhammadiyah 1 Jember. *Jurnal Pengabdian Kepada Masyarakat Nusantara*, *6*(4), 4879–4886.

Avinindy, I. D., Jumyati, & Siti, N. A. (2023). Strategi guru dalam pembelajaran IPA materi wujud benda di sekolah dasar. *Elementary School*, *10*(1), 70–178.

Darmayanti. (2020). Kelayakan panduan praktikum IPA sederhana sekolah dasar berorientasikan lingkungan sekitar. *Jurnal Elementary*, *3*(2), 107–111.

Darmayanti, Wayan, I. K. W., & Wisnu, B. W. (2020). Kepraktisan panduan praktikum IPA sederhana sekolah dasar (SD) berorientasikan lingkungan sekitar. *Jurnal Hasil Kajian, Inovasi, Dan Aplikasi Pendidikan Fisika*, *6*(2), 310–314.

Dewa, A. K. M., & Wayan, S. D. (2025). Identifikasi kesulitan guru dalam mengajar praktikum. *Wahana Chitta: Jurnal Pendidikan*, *7*(1).

Dewi, S. R. (2025). Perkembangan bahasa pada anak. *JPI: Jurnal Pustaka Indonesia*, *4*(3), 188–193.

Diana, Y. R., Aprilia, P. W., Sukadari, S., & Adilla, D. R. (2023). Implementasi kurikulum merdeka pada mata pelajaran IPAS sekolah dasar. *Jurnal Basicedu*, *7*(5), 2873–2879.

Farikhatun, N., Alfi, Z., & Muhammad, J. (2023). Praktikum sederhana pembelajaran IPA untuk meningkatkan hasil belajar kognitif dan keterampilan proses sains di MI Al Hikmah Kajen Pati. *Indonesian Journal of Islamic Elementary Education*, *3*(1), 1–13.

Fitri, A. L. N., Elizar, & Rohmani. (2022). Peran guru dalam meningkatkan motivasi peserta didik pada pelajaran IPA kelas V di SD Negeri Gunung Gijul. *Jurnal Pendidikan Dan Pembelajaran*, *1*(2), 177–186.

Haryati. (2021). Hubungan pelaksanaan praktikum terhadap hasil belajar siswa pada materi fungsi di SMA Swasta Persiapan Stabat. *Jurnal Sintaksis: Pendidikan Guru Sekolah Dasar, IPA, IPS Dan Bahasa Inggris*, *3*(1), 65–71.

Imam, S., & Hefni. (2021). Analisis penggunaan praktikum sederhana untuk meningkatkan keterampilan proses sains di SDN Durbuk III Pamekasan tahun pelajaran 2019/2020. *Eduproxima: Jurnal Ilmiah Pendidikan IPA*, *3*(1), 1–17.

Kemendikbud. (2022). *Capaian pembelajaran mata pelajaran Ilmu Pengetahuan Alam dan Sosial (IPAS) fase A–fase C untuk SD/MI/Program Paket A*. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.

Kementerian Pendidikan Riset dan Teknologi, K. (2022). *Capaian pembelajaran Ilmu Pengetahuan Alam dan Sosial (IPAS) fase B (SD kelas III–IV)*.

Kusumawati, N. (2022). *Pembelajaran IPA di sekolah dasar*. CV AE Media Grafika.

Mei, I. J., & Nurfaturrahmah. (2023). Gerakan penguatan literasi sains melalui praktikum IPA sederhana di SMP 11 Kota Bima. *Jurnal Pengabdian Masyarakat*, *2*(1), 1–8.

Mera, P. D., & Firman. (2023). Studi tentang lembar kerja praktikum dalam meningkatkan keterampilan proses sains pada siswa kelas IV SD. *Jurnal Pelita Ilmu Pendidikan*, *1*(2), 44–48.

Mitha, P., Nyoman, S., & Ina, Y. (2025). Pelatihan dan bimbingan teknis pengembangan pembelajaran IPA berbasis praktikum. *Jurnal Widya Laksana*, *14*(1), 105–113.

Okdiyansyah, W. W., & Abdul, M. (2024). Analisis unsur berpikir kreatif dan keterampilan proses pada buku IPAS muatan IPA kelas IV fase B kurikulum merdeka. *Kajian Pendidikan Dasar*, *3*(2), 191–201.

Poltak, H., & Robert, R. (2024). Pendekatan metode studi kasus dalam riset kualitatif. *Journal of Local Architecture and Civil Engineering*, *2*(1), 31–34.

Riska, R. S., Wilna, W. S., & Mona, H. N. (2024). Perkembangan bahasa anak sekolah dasar. *Jurnal Sains Student Research*, *2*(1), 376–382.

Rosyida, A. (2025). Literasi sains pada bahan ajar Ilmu Pengetahuan Alam dan Sosial (IPAS) sekolah dasar. *Jurnal Pendidikan Dasar Perkhasa*, *10*(1), 1–10.

Sugiyono. (2022). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.

Susanti, N. (2024). *Panduan pengembangan bentuk pembelajaran (penyusunan modul praktikum dan studio)*.

Syahrial. (2025). Penggunaan eksperimen sederhana dalam pembelajaran IPAS di sekolah dasar: Tinjauan pustaka. *Jurnal Bersama Ilmu Pendidikan*, *1*(2), 81–86.

Syarifuddin, Irdawati, Desma, J., & Ghea, A. K. (2025). Pendekatan pembelajaran sains untuk menumbuhkan sikap ilmiah dan karakter sosial peserta didik. *Jurnal Ilmiah PGSD STKIP Subang*, *10*(2), 250–261.

Trianto. (2017). *Model pembelajaran terpadu*. Bumi Aksara.

Wati, O., Misbahul, J., Syahidan, N., & Putri, R. (2025). The implementation of an ethno-inquiry-based science module to enhance the scientific process skills of prospective primary school teachers. *Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah*, *10*(1), 275–286.

Widayanti, & Yuberti. (2018). Pengembangan alat praktikum sederhana sebagai media praktikum mahasiswa. *Jurnal Inovasi Pendidikan Fisika Dan Riset Ilmiah*, *2*(1), 21–27.

Yusron, A. (2024). *Model pembelajaran IPA di sekolah dasar*. Cahaya Ghani Recovery.