

Needs Analysis of Application-based Practical Science Process Skills Performance Assessment of Physics Education Study Program UIN Alauddin Makassar

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Abstract:- The purpose of this study was to describe how the description of the needs of the performance assessment of science process skills of Basic Physics Experiment I practicum application-based Physics Education Study Program UIN Alauddin Makassar. By using descriptive research method, descriptive analysis is research that tries to describe and interpret objects according to what they are. Data collection was carried out by observation and interviews with lecturers of Basic Physics Experiments courses, assistant practicum supervisors in the academic year 2022/2023 and students of class 2022 majoring in Physics Education. The results obtained show that the performance assessment of practicum science process skills, has not used an online-based assessment type and still uses a manual form of assessment (paper work). The needs of course lecturers and assistant supervisors are very high because the performance assessment of practical science process skills based on applications can make it easier for lecturers and assistant supervisors to assess students or practitioners and is in accordance with the demands of 21st century learning that follows the development of increasingly advanced digital technology.

Keywords:- Assessment; Application; Practicum; Science Process Skills.

I. INTRODUCTION

Education is the most important part in the development of quality human resources. The development of quality human resources in the technological era is expected to support developments in the world of education. Education today has three dimensions that are very important and

interrelated, namely the curriculum, the learning process, and the assessment system [1].

The purpose of education is to develop the potential of learners. In this situation, potential skills also include the personality of the learner. Therefore, by analyzing the factors that can affect the teaching process, it can be used to improve current and future education standards [2].

Education cannot be separated from the rapid changes in technology. Every aspect of education has changed, including the curriculum, teaching methods and learning media used. In addition to the learning aspect, there are changes in the competence of students and educators. There are also several theories that explain how this field of education is changing. Education in the current era is commonly referred to as 21st century learning [3].

21st Century Learning is a program to change the focus of the curriculum from teacher-centered to learner-centered. The educational process is currently globalizing, and science and technology are becoming increasingly prevalent as a result. The 21st century calls for the pursuit of essential human capital standards, especially in the field of education. Therefore, it is imperative to implement this program so that learners can understand and adapt to the increasingly complex and technologically advanced aspects of change.

Physics learning has an important role in terms of achieving the implementation of 21st century skills of students. The provision and development of 21st century skills in physics learning is potentially provided through laboratory activities in the form of practicum activities,

therefore many different things can be evaluated and developed through these activities.

Through practicum activities, there are four skills that will indirectly reflect the characteristics of 21st century learning, namely the 21st century, namely Critical Thinking, Collaboration, Communication, and Creativity and Innovation [4].

Practical activities are one of the activities that have proven to be very effective in increasing the effectiveness of learning by doing. Practicum-based learning can be used as a substitute for traditional education to encourage students to be actively involved in understanding concepts. In science education, experimental activities are part of the activities of the learning process.

One of the science learning processes can be observed by conducting an experimental activity, or more specifically the application of illogical methods by learners. Physics experiments can be done with practical exercises in the laboratory and learners can also access through practical applications or online-based ones, so that it can help learners in understanding concepts and how they are produced, as well as learning more about the concepts covered in physics education. Practical exercises can also increase learners' desire to understand their teachers during the learning process.

The practice-based teaching and learning approach is much more meaningful and understood as the right approach to provide experience, knowledge and skills in the long term to learners who are more active in applying the practice appropriately. Besides in terms of practicum activities, basically the material will definitely have a wrong relationship with skills, for this situation leads to the importance of having a performance assessment instrument that can be used to reduce differences in opinion from students in terms of the learning process and practicum activities.

Performance assessment is one of the authentic methods used to identify specific skills that are believed to exist within each person. Performance assessment instruments are also used to improve skill levels, such as speaking skills and skills in practicum implementation. So it is very important for someone to assess one's performance against what is done.

Performance assessment will be carried out properly by involving the right assessment tools or instruments in the practicum process, it will be difficult to maintain the integrity of the learner's interview process if the assessment is not in accordance with the required standards so that it will make skills in their practicum will not be adequate. Assessment of the science process of students can be provided by the preparation of practicum performance assessment instruments consisting of observation sheets and assessment guides.

Permendikbud Number 81A of 2013 states that the performance assessment of practicum implementation consists of four parts of activities to be assessed, namely assembling tools and materials, making observations, processing the data obtained, and drawing conclusions. This is a guideline for researchers to develop aspects of the instrument used and hope that the development of this instrument can produce accurate data on the practicum performance of students.

Based on the description above, the authors will conduct research to find out the relationship between *the assessment needs analysis from manual assessment to online-based assessment* with the title **Needs Analysis of Application-Based Science Process Skills Performance Assessment of Physics Education Study Program UIN Alauddin Makassar**. This study aims to obtain information about to describe how the description of the needs for the performance assessment of science process skills of Basic Physics Experiment I practicum application-based Physics Education Study Program UIN Alauddin Makassar.

II. LITERATURE REVIEW

A. Performance Assessment

The term performance assessment is widely used in education, many times equated with the terms alternative assessment and grading. All of these performance assessment terms are attempts to describe more meaningful forms of assessment. In this way the focus of assessment shifts from students doing activities to get grades with activity tasks of techniques from separate learning to activities to get grades with real learning tasks that show oriented learning to equip life skills with contextual approach learning or in tactical approach learning in play requires contextual methods, namely assessment in the form of student behavior in applying what they learn in real life [5].

Performance assessment is an assessment carried out by observing student activities in doing something. The object of performance assessment is the achievement of student learning competencies that are able to show certain performances that can be observed, specific, and measurable. Demonstrations that can be observed include making presentations, using laboratory equipment and making projects. Performance assessment is not done by written tests or interviews, but by directly observing the behavior that presents the performance. Broadly speaking, learning assessment that includes performance assessment can be carried out on two things, namely (1) the process of carrying out work which includes: work steps and personal aspects and (2) work products or results. Aspects of assessment in the performance of work on the presentation of tasks in the form of the process of implementing presentation performance and the results of the media they make and use [6].

Assessment is the collection of quantitative and qualitative information about learners' learning using various methods or techniques. Included in assessment methods are tests and observations of conceptual activities. In the context of practical work activities, the points at which information is

captured are maximized so as to generate more and valuable information about learners' knowledge or its application [7]. Assessment is an important component in the organization of education. A quality assessment system can improve the quality of education. Assessment techniques can be divided into two types, namely: 1) testing techniques and 2) performance assessment techniques. Performance assessment techniques can be divided into two, namely: 1) assessment of learners to demonstrate limited performance, and 2) assessment that requires learners to demonstrate broad performance [8].

There are five operational definitions of performance assessment, such as: (1) performance assessment is a process, not a single test or measurement tool; (2) the focus of the process is data collection, using a variety of instruments and strategies; (3) data is collected through systematic observation. The emphasis is on direct observation techniques rather than paper and pencil tests, especially not multiple choice tests although they can also be used in assessment; (4) the integrated data is used for the purpose of making specific decisions that will guide the form and substance of the assessment; and (5) the subject of decision making is the individual, not the program or product that reflects a group activity [9].

➤ *Formative Assessment is Divided into two types:*

Assessment for Learning and Assessment as Learning.

- Assessment for learning (AFL) is an approach that helps educators to gather information about learners' performance and provide feedback that is used to improve learning strategies. In addition, it is also to use the results to modify and improve teaching techniques during the learning process. Learners become more engaged in the learning process and gain confidence in what they are expected to learn and what the standards are. Educators use a variety of assessment tools such as individual observations, verbal/nonverbal questions, checklists and rating scales to determine performance levels.
- Assessment as learning occurs when educators help learners to set individualized goals, monitor their progress, self-assess and reflect on their learning. Educators encourage learners to reflect on peer feedback, accommodate peer guidance and monitor achievement of set goals [10].

Performance assessment is a form of authentic assessment that is used to assess certain skills that are expected in learners. The advantages of performance assessment are that it allows learners to express their knowledge in various ways, making learning more meaningful and also contributes to curriculum planning, and can evaluate learning outcomes in a more complex way [11].

The level of assessment purpose at which these points are assessed is also important. The purpose of an appraisal concerns the technical purpose of an appraisal event and is measured by allocating a value or grades. This valuation is a measure against a set standard or reference. The decision level reflects the judgment of the appraisal. That is, it is an

action derived from judgment. It is the action we should take based on the allocated value [7].

➤ *The Components of Performance Assessment are:*

- Tasks that require educators to use the knowledge and processes they have learned.
- Checklists that identify the elements of the action or outcome being examined
- A set of descriptions of a process and/or a continuum of quality scores (rubric) used as a basis for assessing overall work
- Examples of excellent quality as models for the work to be done [12].

B. Practicum

Practicum is an activity carried out by students with the aim of conveying knowledge at a higher cognitive level and creating a sense. Practical activities are a way of presenting lessons where students conduct experiments through practical work by carrying out and proving something that is learned. Practical activities will provide opportunities for students to experience and do themselves, follow a process, observe an object, analyze, and draw conclusions independently [13]. The purpose of carrying out practicum activities is to increase scientific knowledge, as a means of teaching skills in experimenting, in order to develop a scientific attitude consisting of open-mindedness, being objective, and also a willingness to suspend judgment, in order to increase expertise and provide judgment, to increase motivation for students, with the implementation of fun and interesting practicum activities [14].

The role of the science process skills approach in teaching and learning is very important with successful learning. Training and developing science process skills in students will be very useful for students not only as a process for building knowledge in learning but also useful in everyday life, so science process skills are very important for students because as preparation and practice in facing the realities of life in society because students are trained to think logically in solving a problem in society [15].

➤ *The objectives of the Practicum and the Models of Exercises or Assignments to Achieve them by Domain Group can be Mentioned as follows:*

- The cognitive domain aims to promote intellectual development, strengthen learning of scientific concepts, develop problem-solving skills and enhance understanding of science and the scientific method.
- The psychomotor domain aims to develop creation skills, develop science investigation skills, develop skills to cooperate with others.
- The Affective domain aims to strengthen attitudes towards science, encourage perceptions of attitudes towards science and encourage positive perceptions of one's abilities [16].

➤ *Physics Practicum Activities are Grouped into four Types, Namely:*

- Standard experiments, which are experimental activities carried out by students with the work steps have been compiled and available in full.
- Discovery experiments, are experimental activities carried out by students with teacher direction but the steps must be developed independently by students.
- Demonstration activities, are experimental activities carried out by the teacher that are intended for learners who may or may not be involved in the activity related to the work steps in the experiment.
- Project, is an activity carried out by learners faced with a problem [14].

➤ *In General, the Implementation of Practicum is Carried out through a Series of Stages. the Grouping of Practicum Stages into the Preliminary Stage, the Implementation Stage, and the Post-Practicum Stage.*

- Preliminary stage: This stage plays an important role in directing students about the activities to be carried out. Included in this stage is linking the activities to be carried out with previous activities, explaining the work steps that must be carried out by students, and motivating students.
- Working stage: This stage is actually the core of practicum activities. It is at this stage that students perform practical tasks, such as assembling tools, measuring, and observing.
- Closing stage: After the implementation does not mean that the practicum activity is over. In the closing stage, the results of observations are communicated, discussed, and conclusions are drawn [17].

➤ *The Reasons for the Importance of Practicum Activities in Science Learning, Namely*

- Practicum generates motivation to learn science Students who are motivated to learn will be more active and serious in learning something. Practical activities in the laboratory are an opportunity to provide encouragement and motivation to students by arousing curiosity and wanting to be able. This principle will support practicum activities where students find knowledge by exploring nature.
- Practicum develops basic skills for conducting experiments Experimentation is an activity that is widely carried out by scientists To carry out experiments, several basic skills are needed, such as observing, measuring, arranging laboratory equipment, recording observations, and interpreting data. Practical activities train students to develop experimental skills by training their ability to observe carefully, measure accurately with simple or more sophisticated measuring instruments, use and handle tools safely, design conduct and interpret experiments Practical activities become a vehicle for learning the scientific approach.

- The best way to learn the scientific approach according to science education experts is to make students behave as scientists. Science learning will be more meaningful if it is carried out using the scientific inquiry method, to foster the ability to think, work and behave scientifically and develop ways of communicating the results of practical activities carried out as one of the important aspects of life skills and is one of the 21st century skills.
- Practicum supports the subject matter. Practical activities provide opportunities for students to prove theories or discover theories so that they can support students' understanding of the subject matter [18].

C. *Science Process Skills*

Science process skills is an approach based on the assumption that science is formed and developed through a scientific process. In science learning, the scientific process and developed in students as a meaningful experience. However, understanding science concepts does not prioritize results (products) alone. But the process of getting the concept is also very important in building students' knowledge [19].

Training science process skills is one of the important efforts to obtain optimal student learning success. The subject matter will be easier to learn, live and remember for a relatively long time if the students themselves gain direct experience of the learning event through observation or experimentation needed to improve the science process skills of students and foster and improve the academic abilities (skills) of the students themselves [20].

Science process skills (KPS) is an approach that directs that to find knowledge requires the skills of observing, conducting experiments, interpreting data, communicating ideas, and so on. Science Process Skills (KPS) can be interpreted as the skills possessed by scientists in obtaining knowledge and communicating the knowledge they obtain. These skills mean the ability to develop logic, act efficiently, and effectively, and creativity [21].

➤ *The Science Process Skills Approach to Develop the Abilities that Students have, Namely:*

- The process skills approach gives learners a proper understanding of the nature of science
- Teaching with process skills means giving learners the opportunity to work with science, not just telling or listening to science stories. On the other hand, learners feel happy because they are not passive learners
- Using process skills to teach science makes learners learn and produce science at the same time.

➤ *Aspects that can be Developed in the Nature of the way of Investigating which is Commonly Known as Science Process Skills (KPS) are Observing, Collecting Data, Developing a Hypothesis, Experimenting, and Concluding. the types of Skills of each Physics Skill as a Process Include:*

- *Observing (Observation)*

Observing is the most basic science process skill. Observing an object or substance means exploring all of its properties. Observing or observation includes identifying and describing the characteristics of objects. When making observations in science, observations should be made carefully and objectively. Observations can be qualitative and quantitative.

- *Classifying or Categorizing*

Classifying is a process used by scientists to make objects and events well organized. Classification systems are used in science and other disciplines to identify objects, places, ideas or events and to show similarities, differences and relationships between these objects, places, ideas and events. Classification can be done in three ways: binary classification, multi-stage classification and ordering.

- *Measuring or Taking Measurements*

Measuring is a way of quantifying an observation. The skills required are not only accuracy in choosing and using the measuring instrument, but also performing calculations using the instrument. Measurement will add accuracy to the results of observations and also classifications.

- *Asking Questions*

Questions are an essential part of science. Scientific questions are limited to the natural world that can be directly observed. A question is a scientific question if it can be answered with observations or evidence.

- *Formulate a Hypothesis*

An experiment usually starts with a problem to be solved, a question to be answered, or a decision to be made. By deliberately changing one of the factors in an investigation, the result is that other factors will change. Hypotheses are predictions about the relationships between variables. Hypotheses provide clues when researchers want to collect data in research.

- *Planning an Investigation or Experiment*

Designing an experiment is carrying out an activity to test a hypothesis. In general, the design of the experiment has a certain pattern. There are many science process skills that can be used to conduct or design an experiment including making questions, formulating hypotheses, following experimental steps, controlling variables, finding operational definitions, analyzing data and drawing conclusions.

- *Interpreting or Interpreting Information*

In collecting data by making observations and measurements during science experiments. After data collection, we must evaluate and find meaning in the data by looking for certain patterns.

- *Data Analysis or Data Processing Stage*

Measurement and investigation skills are the two main things that should be checked when learners collect and analyze data. By making observations and measurements during science experiments to obtain data. Interpreting and

finding meaning in the data after the data has been selected by looking for certain patterns is important.

- *Inference*

Making statements that summarize what has been learned through investigation or observation is referred to as drawing conclusions. Experimental results are often related to hypotheses. Thus, it can be concluded whether the hypothesis is known to be true or not after conducting experiments, making and recording observations and analyzing data [22].

➤ *The Benefits of Science Process Skills Include:*

- With the science process skills approach, students can further develop their knowledge.
- The ability to learn through instructional strategies will give learners the opportunity to apply the knowledge of each learner
- Learners can use their science process skills to learn the methods and outcomes of science simultaneously which will help learners to learn the material well as they have a greater understanding of science facts and ideas [23].

III. METHODOLOGY

A. Research Design

This research is a type of descriptive research, where descriptive research is research that seeks to describe and interpret objects as they are, this research is also often called non-experimental research, because in this study researchers did not control and manipulate research variables. This research was conducted using a survey method, where the survey method is generally a tool to collect data in the field

B. Research Instrument

➤ *The Instruments used in this Study are Direct Interviews with Lecturers of Basic Physics Experiments Courses and Surveys for Assistant Supervisors and Physics Education Students Class of 2022. For Interviews with Related Lecturers, as for some of the Questions asked by the Author, among others:*

- What are the assessments assessed in the Basic Physics Experiment Practicum
- How is the scoring system for assessment of response, practicum and report
- What parts of the practicum activities will be assessed
- How are the scoring guidelines for practicum assessment instruments?
- Is the use of rubrics on assessment very important

➤ *For Students Majoring in Physics Education Class of 2022 which Contains Identity, among others:*

- *Full name*
- *Class*
- *Gender*

➤ Then it Consists of 9 Questions, Namely Regarding the Assessment of basic Physics Practicum, among others:

- What are the experimental units in the Basic Physics Experiment practicum
- Is there a practicum assessment guideline available
- Is the practicum activity for assessment specifically assessing each stage of the activity?
- Is the assessment method used, manual or online
- If manual based, is manual assessment effective
- Is it important that online-based assessments are accompanied by authentic assessment principles?
- Whether there should be changes to preliminary tasks and reports with 'handwritten' manuals
- Are practicum activities with the existing lecture load very time-consuming?
- Length of time spent doing practicum assignments

➤ For Assistant Practicum Supervisors who Contain Identity (Name, Number and Class), then it Consists of 3 Questions Including:

- The Type of Performance Assessment used in the Basic Physics Experiment Practicum
- What Type of Performance Assessment is Recommended for the Practicum of Basic Physics Experiments
- Is there a need for Online Assessment for the Performance of Basic Physics Experiment Practicum?

C. Method of Data Collection

In collecting data, researchers were assisted by peers as documentation of the activities that took place in the study. To obtain data / collection, researchers collect data by conducting observations, interviews and documentation. In the process of collecting data, observations and interviews were carried out, the researcher acted as a passive participant observer. Therefore, the researcher must be as good as possible, careful and earnest in collecting data in accordance with the reality in the field so that the data collected is truly relevant and guaranteed its validity.

D. Data Analysis

In accordance with the approach used in this research, namely qualitative research, the data collected in the study were analyzed using qualitative data analysis methods. Qualitative data analysis is an effort made by working with data, organizing data, sorting it into manageable units, synthesizing it, looking for and finding patterns, finding what is important and what is learned, and deciding what can be told to others.

Before conducting data analysis, data reduction was first carried out, namely summarizing, focusing data on important things and deleting data that was not patterned from observation and interview data. The data analysis techniques used in this research are as follows:

➤ Data Reduction

Data reduction is an activity of sorting, focusing on simplifying abstracting and transforming raw data obtained from important field notes. Data reduction starts from the

beginning of the activity and continues during data collection activities. The data reduction stages of this research are:

- The Results of the Interview were Simplified into a Good Language Composition and then Transformed into Notes.

➤ Presentation of Data

In this data presentation in the form of student work results arranged according to the order of the research object. This activity shows a collection of data or information that is organized and categorized so that it allows drawing conclusions and taking action. The form of data presentation in this study includes:

• Presentation of Interview Results

From the results of the presentation of data, it is analyzed and then concluded in the form of data findings to describe the objectives in this study.

➤ Drawing Conclusions

At the stage of drawing conclusions this is done by comparing the results of interviews with lecturers and observations of students and assistant practicum supervisors so that conclusions can be drawn about how the description of the needs of the performance assessment of basic physics experiments II basic physics experiments II practicum.

IV. RESULT AND DISCUSSION

A. Descriptive Data

➤ Number of Respondents

• Assistant Supervisors

Based on the results of the analysis of the identity of the respondents, first of all, the identity of the respondents (assistants) as many as 7 people, seen based on gender, as contained in the following table:

Table 1 Number of Respondents

Gender	Number of respondents
Male	1
Female	6
Total	7

The table above shows that of the 6 assistant supervisors, 1 is male and 6 are female. This data shows that the tendency of assistant supervisors is a woman. There were more female respondents than male respondents. Visually, the difference in numbers is quite striking.

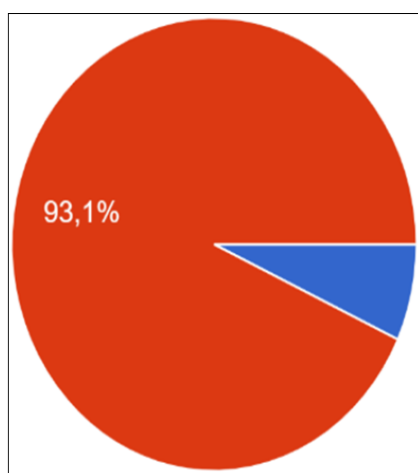
• Physics Education Students

Based on the results of the analysis of the identity of the respondents, first stated about the identity of the respondents (assistants) as many as 29 people, seen based on gender, as contained in the following table:

Table 2 Number of Respondents

Gender	Number of respondents	Presentation
Male	2	6,9%
Female	27	93,1%
Total	29	100%

The table above shows that out of 29 physics education students in class 2022 there are 2 men and 27 women. This data shows that the tendency of physics education students in class 2022 is a woman. The number of female respondents is greater than that of male respondents. Visually, the difference in numbers is quite striking.



Graph 1 Number of Respondents

➤ *Experimental units of Basic Physics Experiment*

• *Physics Education Students*

Based on the results of the analysis of the experimental units known by the respondents, it is first stated about the experimental units in the Basic Physics Experiment, seen based on the answers represented in all respondents' answers, as contained in the following table:

Table 3 Experiment Unit

No.	Experimental Unit
1.	Measurement basics
2.	Vector and resultant force
3.	Projectile motion
4.	Frictional force
5.	Harmonic motion oscillations
6.	Pressure and the main law of hydrostatics
7.	Density and Archimedes' law
8.	Specific heat

From the table above shows that from 29 physics education students there are almost the same answers. This data shows that there are 8 experimental units in the practicum of basic physics experiments, namely the basics of measurement, vectors and resultant forces, projectile motion, friction, harmonic motion oscillations, pressure and the main law of hydrostatic, density and Archimedes' law and specific heat.

➤ *Practical Assessment Guidelines*

• *Physics Education Students*

Based on the results of the analysis of the assessment guidelines known by the respondents, it is first stated about the assessment guidelines for Basic Physics Experiments, seen based on the answers represented in all respondents' answers, as contained in the following table:

Table 4 Assessment Guidelines

No.	Assessment Guidelines
1.	Response
2.	Practicum
3.	Report (interim and complete)

From the table above shows that from 29 physics education students there are almost the same answers. This data shows that there are 3 assessment guidelines in the basic physics experiment practicum, namely the response to the preliminary task, practicum and report.

➤ *Form of Assessment*

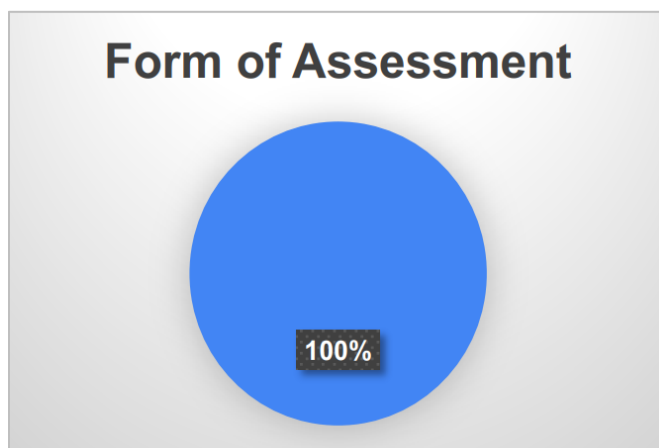
• *Assistant Supervisor*

Based on the results of the analysis of the form of assessment used in the practicum of Basic Physics Experiments in the 2022/2023 academic year, first stated about the type of assessment in Basic Physics Experiments, seen based on the answers represented in all respondents' answers, as contained in the following table:

Table 5 Form of Assessment

Form of Assessment	Number of respondents	Presentation
Manual	7	100%
Online	0	0%
Total	7	100%

The data in the table above shows that out of 7 respondents (assistants), 100% of assistant supervisors use manual assessment (paper work), and none have used online assessment. This shows that all assistant supervisors still use manual assessment (paper work), due to the lack of direction or guidance related to online assessment.



Graph 2 Form of Assessment

• *Physics Education Students*

Based on the results of the analysis of the form of assessment used in the practicum of Basic Physics Experiments in the 2022/2023 Academic Year, first stated about the type of assessment in Basic Physics Experiments, seen based on the answers represented in all respondents' answers, as contained in the following table:

Table 6 Form of Assessment

Form of Assessment	Number of respondents	Presentation
Manual	29	100%
Online	0	0%
Total	29	100%

The data in the table above shows that out of 29 respondents (students), 100% of assistant supervisors use manual assessment (paper work), and none have used online assessment. This shows that all assistant supervisors still use manual assessment (paper work), due to the lack of direction or guidance related to online assessment.

➤ *How Important are the Principles of Authentic Assessment in Online-based Assessment.*

• *Physics Education Students*

Table 7 Principles of Authentic Assessment

Important principles of authentic assessment	Total
Yes	16
No	8

The data in the table above shows that of the 29 respondents (students), 16 students said it was important and 8 people said it was not important if the principles of authentic assessment on online-based assessments. This shows that more students consider the principles of authentic assessment important in online-based assessments.

➤ *Types of Effective Assessment*

• *Assistant Supervisor*

Table 8 Type of Effective Assessment

Form of Assessment	Number of respondents
Manual	1
Online	6
Total	7

The data in the table above shows that of the 7 respondents (assistants), 6 assistant supervisors for the type of assessment that is effective using online assessment (online assessment) and 1 assistant the type of assessment that is effective is manual assessment. This shows that most assistants consider online assessment to be effective if implemented, because when viewed in terms of efficiency and practicality.

➤ *The Need for Online-Based Assessment*

• *Assistant Supervisor*

Table 8 The Need for Online-based Assessment

The need for online-based assessment	Number of respondents
Yes	6
No	1
Total	7

The table above shows that out of 7 respondents (assistants), 80% of teachers need online-based assessment, and 1 assistant does not need online-based assessment. This shows that the desire of assistant supervisors for this online-based assessment is very high.

B. *Analysis of the Results of Interviews with Lecturers of Basic Physics Experiment Courses*

Of all the respondents (students and assistants) who filled out the questionnaire, again conducted interviews with lecturers of basic physics experiment courses. This interview aims to find out how the assessment is assessed in the Basic Physics Experiment Practicum, how the scoring system is for the assessment of the response, practicum and report, how the scoring guidelines for the instrument for practicum assessment and whether the use of rubrics on the assessment is very important.

➤ *Assessment on Basic Physics Experiment Practicum*

The lecturer commented on the assessment, namely that there were 3 assessments carried out, namely the response, practicum and report scores.

➤ *Assessment System for Response, Practicum and Report Assessment*

The lecturer commented on the assessment system for the assessment of the response, practicum and report, namely that the response assessment depends on how the practitioner's understanding and ability to answer several questions from the assistant supervisor related to both the material and the steps of the practicum process. For practicum assessment, how practitioners carry out practicum properly, process data and draw conclusions from the practicum. For the report assessment based on the completeness of the report and the contents of the report can be accounted for by the practitioner.

➤ *Instrument Scoring Guidelines for Practicum Assessment*

The lecturer commented on the scoring guidelines for practicum assessment instruments, namely that they were not clear so that the components assessed were difficult to observe and difficult to use.

➤ *The use of Rubrics in the Assessment is very Important*

The lecturer commented that the use of rubrics on the assessment is very important, namely he hopes that the assessment instrument will pay attention to the rubric as a reference for scoring by paying attention to the indicators that are suitable for scoring and also scoring from the manual

version to an application-based that can be used properly during practicum.

V. DISCUSSION

In the Physics Education Study Program, there is a Basic Physics Experiment I course that requires students to carry out practicum activities as an integral part to deepen knowledge related to physics concepts through experimental activities. In these practicum activities, performance assessment is needed which includes preparation, process, and product. Performance assessment is carried out by lecturers and assisted by laboratory assistants. Lecturers and assistants work together to monitor all student activities related to practicum activities. In its implementation, lecturers and laboratory assistants sometimes face an obstacle in conducting assessments, given the limitations of observation and the large number of students, so there are times when student performance that appears to be less well noticed. In fact, it is not uncommon for students to complain about the assessment.

Based on the results of interviews conducted by the author to one of the lecturers of the Basic Physics Experiment course, he gave information about the practicum assessment guidelines, that the assessment in the basic physics practicum was divided into 3 parts, namely the response value, practicum value and report value. For the Midterm Exam assessment, it is obtained from project assignments given to each student in groups and the final grade is obtained at the end of the practicum and given an assessment according to the ability of each student. For practicum grades, the assessment begins with students carrying out practicum properly, processing data and being able to draw conclusions from the practicum that has been carried out. For the assessment of the report based on the completeness of the report and the content of the report that can be accounted for by the student. Indicators of student graduation from Basic Physics laboratory practicum activities are fully from three aspects of responsiveness, practical activities and final reports. The instrument scoring guidelines are not clear so that the components assessed are difficult to observe and difficult to use. He hopes that the practicum assessment instrument can use a rubric as a reference for scoring by paying attention to indicators that are suitable for scoring and also from scoring from the manual version to an application-based that can be used properly during practicum.

Based on the results of interviews conducted by the author to several Basic Physics laboratory assistants in 2022/2023 in December 2022, it was stated that the evaluation system in the form of performance assessment and performance assessment instruments began to be used again in the Basic Physics practicum 2022/2023 yesterday, but still has limitations that need to be developed again. One of the limitations in question is that the assessment is still in the form of paperwork, online assessment has not been developed at this time. With manual assessment, it has not used rubrics as a reference for conducting assessments and this is an obstacle for laboratory assistants.

Meanwhile, based on the results of preliminary observations made by the author in the Basic Physics Laboratory, Faculty of Tarbiyah and Keguruan, it was found that the assessment for Basic Physics practicum is still in the form of a simple assessment format, in the form of paper assessment. Meanwhile, on the other hand, Physics Education students class of 2022 also provided information regarding the use of practicum performance assessment instruments which were still manual. Manual in the sense that it still uses paper and the filling system uses stationery in the form of pens or pencils. Some students expect a form of practicum assessment that is transparent or can be seen directly through a virtual base.

VI. CONCLUSION

Based on the above, it can be concluded that the assessment in the Basic Physics Experiment practicum still uses a manual assessment conducted by the assistant supervisor and lecturer of the Basic Physics Experiment course. From the existing problems, the author provides a solution, namely developing a performance assessment in practicum based on android or online. This application-based practicum performance assessment is very appropriate to be a solution to the problems faced by assistants and lecturers. Where this is in line with the expectations of assistants and lecturers who need an assessment that can be used anytime and anywhere and is objective and practical. The form of assessment in question is a form of assessment that fulfills the components of the assessment principle marked by the existence of an assessment rubric which is used as a reference for giving scores and is easy in terms of use and efficiency. The components of assessment principles based on assessment standards are valid, objective, fair, integrated, open, comprehensive, systematic, criteria-based, and accountable. In terms of the use of android-based practicum performance assessment can be accessed via cellphone or computer and the value will be stored in the form of a file. In terms of efficiency, android-based assessments can be an economical form of system assessment in terms of time and cost and ease of use for processing data from these assessments.

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