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of the 7th South East Asia Design Research
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**“Improving Professionalism and Reflective
Thinking through Design Research”**

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and Reflective Thinking through Design Research”

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Preface

It is an honor and privilege to welcome you to the 7th South East Asia Design Research International Conference. The conference's theme, "Improving Professionalism and Reflective Thinking through Design Research," invites us to reflect on the current educational challenges, e.g. globalization and industrial revolution 4.0, and transform them into opportunities through design research. It acknowledges the need to develop our professionalism so that we can proactively contribute to the advancement of educational science and praxis. It challenges us to re-thinking the design research as a method to make learning and teaching innovation possible, but also as a paradigm in building our capacity for innovation.

Yogyakarta is an artsy and historical city which serves as a fitting cultural, social, political, and economic milieu for the conference. The tagline, "Jogja Istimewa," itself shows how the city has special values to be explored and experienced, and we encourage you to absorb the city's abundance: The Kraton, the cultural and political heart of the city; Fort Vredeburg museum; Malioboro road; Dipowisata urban tourism, to name a few.

The perfect ambience of Yogyakarta will provide us with a convenient space to interact and exchange ideas with colleagues as a means of professional learning. Our goal is for you to get new ideas, tools, and materials from the conference which will contribute to your professional development. The variety of sessions, workshops, and social events will give you opportunities to connect with friends and colleagues to expand your networks. We are excited about the keynote and invited speakers. We believe they will share challenging and innovative ideas about education.

This conference is the result of the hard work, support, and dedication of a number of parties. We wish to thank all the committee members who together make the conference possible. The committee has been working throughout the year to propose sessions, review a record number of submissions, answer queries, arrange the schedule, and response to last-minute requests. We also want to thank Sanata Dharma University; Ministry of Research, Technology, and Higher Education of Indonesia; Sogang University and SEAMEO QITEP in Mathematics for their contribution to funding the conference. Thank you for being here with us. We value your presence at the 7th South East Asia Design Research International Conference. Enjoy the conference!

Yosep Dwi Kristanto, Conference Chair

Albertus Hariwangsa Panuluh, Conference Vice Chair

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Student Perception of Online Quizzes and Interview Pretest Implementation in Pre-Practicum Activity

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Abstract: A practicum is activities that can improve student's scientific skill. However, students sometimes do not prepare themselves before practicum activities, so pre-practicum activities are needed to help students prepare themselves. This study wanted to find out students' perceptions about pre-practicum activities in the form of online quizzes and interview tests. The samples in this study were students who took the Modern Physics Experiment. At the first meeting, students directly conducted practicum without any pre-practicum activities. The second meeting, they must answer questions that have been prepared in the google form (online quizzes) one day before conducting the practicum. The third meeting, the students conducted a direct interview pretest before the practicum. Afterward, they filled out a questionnaire to be able to compare which pre-practicum methods were most helpful in preparing the practicum activities. The results obtained more than half of total students preferred the online quizzes pretest method, more than quarter of total students chose the interview pretest, and the rest wanted no pre-practicum activities. Then to support the results, interviews were conducted with several students. Students choose the online quizzes pretest as a pre-practicum activity because it can help them prepare themselves before conducting a practicum and it doesn't take much time because it can be done at home. While the interview pretest method takes a lot of time to practicum, other than that nervous factors make it difficult for them to answer well.

Keywords: perception, pre-practicum, online pretest, interview pretest

Introduction

Practicum is one of the important subjects in the Physics Education Study Program. Students study in the practicum class to support theoretical classroom learning. Practicum activities are important because practicum can improve student's scientific abilities (Hamidah, 2014). When students do practicums, they are invited to take scientific steps. Through practicum activities, students find solutions to problems and then make hypotheses. Then complete the activity to prove the hypothesis with the steps to retrieve data. After the data is obtained then begin to analyze the data and proceed with concluding. Although usually practicum steps have been provided, at least students learn the stages.

Many benefits can be taken from practical activities, but the students themselves sometimes look at the eyes of this practicum activity. The students did not respond to practical activities as important as activities in theory class. Even though, students who are well prepared for laboratory classes are more likely to successfully acquire laboratory skills and gain the maximum possible benefit from the laboratory learning environment (Sarah-Jane & Di Trapani, 2012; Amin, 2015). They consider the practicum class is the time to play so that they do not prepare well, so the practicum does not run smoothly. The time that should be used for discussion strengthens the understanding of the material through practical observations, but it is used up to discuss technical constraints due to lack of preparation. Besides, students tend to want to get data only without looking deeper so that when compiling the report, they cannot discuss more deeply. Usually, the discussion contains just the story of activities without realizing why this can happen and is associated with the theory that has been accepted. As a result, the benefits of practicum are not optimal.

Modern physics experiments are activities that observe electrons and atoms. Of course, these electrons and atoms cannot be directly seen by the eye. Many practicum equipment is an integrated tool so that events that occur in them cannot be seen and observed directly by students. Therefore, students must understand how to work first before conducting practicums. Because if you do not understand how



it works and the process, if there is an obstacle that cannot be overcome, especially if you have difficulty discussing why it can happen.

Previous research concludes that it's an unknown pre-practicum method that is ideal for students, it depends on students itself (Rollnick et al., 2001). However, other studies have found that online quizzing makes students prepare before class (Marcell, 2008; Whittle & Bickerdike, 2015; Dobson, 2008). Therefore, this study will use online quizzes as a pre-practicum activity. The online quizzes will use google form. These online quizzes will be compared to interviews as a pre-practicum activity. The purpose of this research is to look at students' perceptions of these two pre-practicum activities to find out which methods help students prepare themselves.

Research Method

This research was conducted with descriptive research methods. The sample used was sixth-semester Physics Education students who took courses in modern physics practicums. The total sample is 41 people. In this study, students were given a prior explanation of theories and also the procedure of conducting practicums in modern physics. All material is given at the beginning of the meeting. The giving of this material was carried out for three meetings because eight practicum eyes had to be done.

After the material explanation is complete, students are divided into groups. Each group consists of two to three people. Then at the next meeting, students are welcome to conduct practicums immediately according to a predetermined schedule. Students are only encouraged to study and prepare practicums privately at home. In other words, there is no pre-practicum activity before the first day of practicum.

At the second meeting, before conducting the practicum, students are asked to answer questions about the practicums that will be conducted tomorrow. Questions have been prepared with the help of Google Form. Students must answer every question on the google form one day before practicum, and every student answer personally. Then on the practicum day, before the practicum begins students are invited to a brief discussion to straighten out the incorrect answers or discuss things that are still not understood.

At the third meeting, pre-practicum activities were carried out at the practicum hours. Each group will be asked directly (interview) about the material from the practicum they will do. This question is open and can develop to adjust the answers of the practicum participants, but there are basic things that must be mastered and answered correctly. After the practicum participants can answer correctly then it can do the practicum.

After three treatments, students are asked to choose the most preferred method. Also, there are open questionnaires for them to answer. This questionnaire was used to find out the reasons for choosing their pre-practicum activities. Data from the questionnaire is then analyzed by percentage technique that appears from their answers.

Result and Discussion

Result

The results of the questionnaire showed that students preferred to fill the Google Form (online quizzes) compared to interviews and directly. Of the 41 students used as the sample, 58% chose online quizzes, 32% chose the interview method, and only 10% chose no pre-practicum activities as shown in Figure 1. Besides choosing more methods preferred, the students were also asked to convey the reasons why they chose the method and revealed the benefits and obstacles they had when using the method as a pre-practicum activity. The reasons students choose pre-practicum activities are shown in Figure 2 and Figure 3.

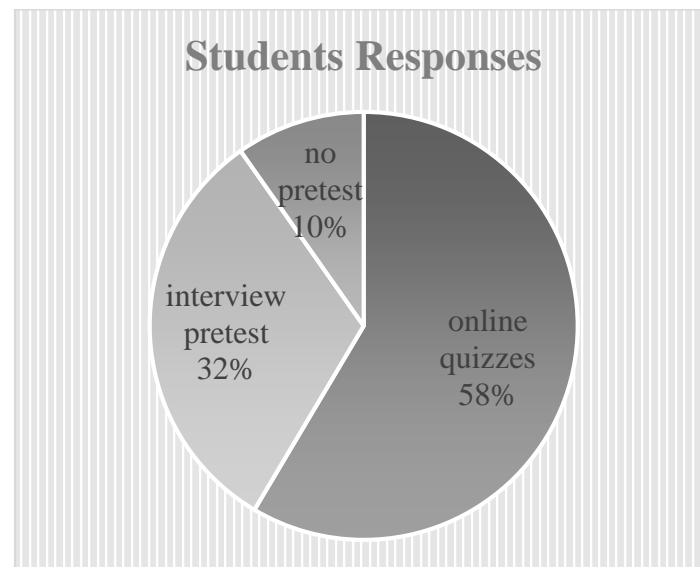


Figure 1. Student choice for pre-practicum method

Figure 2 shows the reasons students chose online quizzes as pre-practicum activities. More than thirty percent of students' responses are online quizzes that help them prepare before practicing. The other benefit of online quizzes is the practicum time more efficient and can help students to understand about the practicum so the practicum can be done smoothly. While, the interview test can help students to understand about the practicum, as shown in Figure 3. The interview also can help to force students to prepare before practicum.

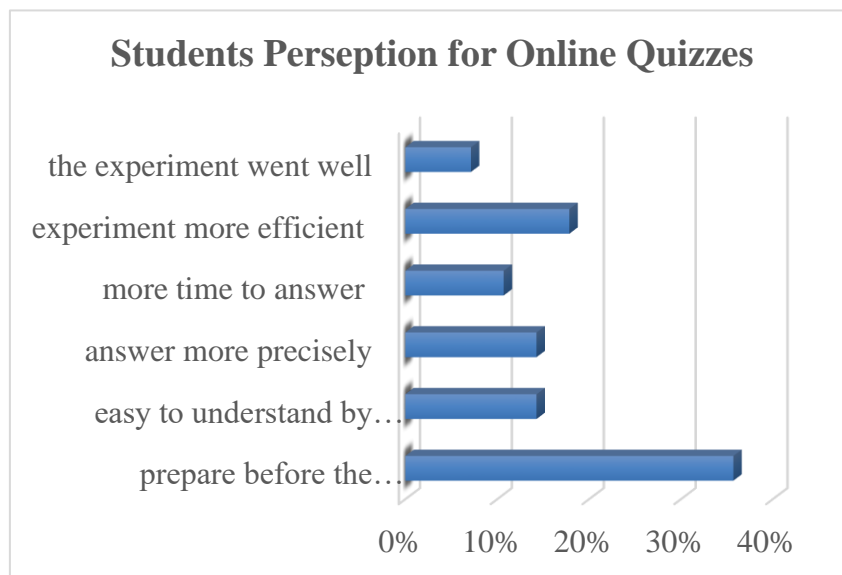


Figure 2. Students' perceptions of online quizzes as the pre-practicum method

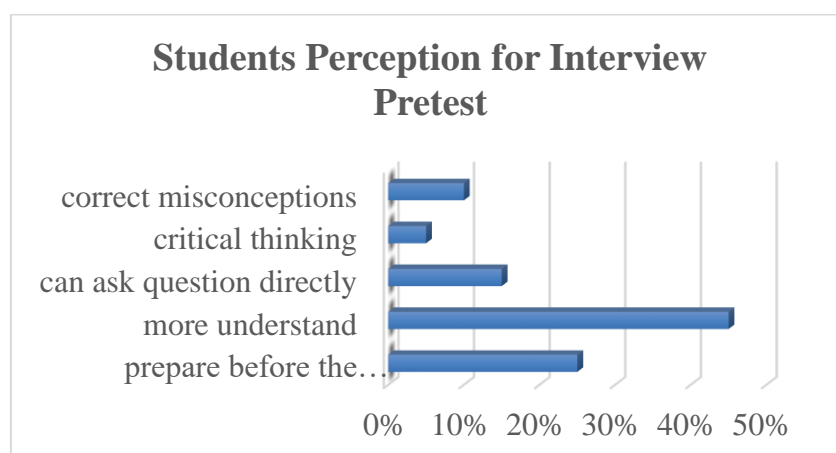


Figure 3. Students' perceptions of the pre-practicum interview method

Discussion

Figure 1 shows that more than half of students choose the method of answering questions on the google form. The students choose to answer questions on the google form because one reason is to force them to study before practicum. This is in line because students must answer questions on this google form one day before they do the lab. Based on this reason, the purpose of the pre-practicum activity is of course that the practicum participants prepare themselves for practicum as shown in Figure 2. By answering questions, students are forced to learn to be able to answer questions correctly, therefore one of the benefits obtained is they become aware of the practicum they will do. The students who are better prepared can certainly carry out the practicum more smoothly so that the practicum time felt more effective, this is also one of the benefits felt by this pre-practicum activity. The next benefit is still felt after the completing practicum, students are required to make reports and pre-practicum activities turned out to be help make reports, especially on discussion points. This student's perception is in line with previous research (Patterson, 2011; Miranda, Sanchez, & Forero, 2017).

The benefits of this pre-practicum activity can indeed help practicum participants to prepare themselves, but some things become obstacles. One of the most conveyed obstacles is forgetting. Pre-practicum activities have not yet become an ordinary thing to do, especially the sample is the final year student and this Modern Physics experiment is the last practicum course. Besides, another obstacle encountered was network. Good internet quality is very supportive of this activity. If an error occurs, the difficulty is they must refill from the beginning because the answers cannot be partially saved, while the questions that must be answered are quite a lot. In addition, for students who are lazy and want to be practical, answering questions can be done simply by copying paste directly from the source they are looking for on the internet. But this can usually be detected so that before the practicum it needs to be straightened out and re-checked the understanding. This slows down the time to start practicing.

The second choice for pre-practicum activities is the interview method. The students choose the interview method as a second choice because it makes them more understanding as shown in Figure 3. This happens because by interviewing, direct answers can be corrected if wrong, or if there are direct misconceptions that can be corrected. In addition, this pre-practicum method can also force students to learn before they start practicing because if they cannot answer smoothly the practicum time will decrease a lot to do pre-practicum activities. Pre-practicum activities with this interview method are indeed carried out before practicum so that practicum time is reduced. Through this interview method, the benefits obtained are training to be able to speak better and train mentally.

The pre-practicum method of interviewing is indeed considered enough to be able to train mentally because this is one of the many obstacles that are conveyed. The students feel nervous when interviewed so that they often make it unable to think clearly, difficult to string words well, and nervous. This causes the interview process to be hampered. In addition to the interview method, the problem of time is the main reason they did not choose this method.

The third option is the absence of pre-practicum activities. According to those who choose there is no pre-practical activity because it saves time and is practical. Moreover, all this time there were no pre-practical activities. But when they were asked to write down the obstacles they faced, they realized that if there were no pre-practicum activities, they would have difficulty when practicing. Especially the Modern Physics Experiment practice the things observed are about atoms and electrons, which cannot be seen by the eye. So that if it is not studied and understood the workings of the tool then do not know what should be observed and why it can happen that way. As a result, the orientation of this practical activity is to obtain data only. This is certainly not the goal of the planned practical work.

Conclusion

Students choose an online quizzes pretest as a pre-practicum activity because it can help them prepare themselves before conducting a practicum and it doesn't take much time because it can be done at home. While the interview pretest method takes a lot of time to practicum, other than that nervous factors make it difficult for them to answer well.

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