PRESERVICE TEACHERS' PERCEPTION ON THE IMPLEMENTATION OF ONLINE PROJECT-BASED LEARNING

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Article Info	Abstract
Article History *Received: July 2022* *Revised: August 2022* *Published: October 2022* **Keywords** *Project-based Learning;* *Online Learning;* *Online PBL;* *Technology in Education.*	*Current studies provide compelling evidence that project-based learning (PBL) is an effective method for the students. Considering the empirical findings, PBL is highly endorsed in many EFL contexts. However, with the major shift to online learning due the pandemic, little is known about the possibility of PBL implementation within this new context. This current case study attempts to portray the PBL implementation within the online context and how the students perceive the implementation. The study was carried out in an English Education Department involving 36 seventh-grade preservice teachers (PTs). The data were collected through classroom observations, online questionnaires, and in-depth semi-structured interviews. The data were analyzed using the interactive model and the results of the analysis show the stages of PBL can be implemented in the similar way to that in the offline setting. However, the technological use in the online setting differs in terms of the amount of its usage frequency. The study also revealed that the students consider the implementation of PBL in online setting as challenging yet motivating. The findings imply that the changes of teaching and learning setting do not affect the durability of the PBL. It means that with a little tweak, mainly in terms of technological usage, grouping and group communication, PBL might be successfully implemented in the online setting.*

INTRODUCTION

Project-based Learning is widely used in traditional classroom settings all around the world and is one of the methods that has been around for long time. PBL (Project-based Learning) refers a systematic teaching and learning method which is intended to inspire students to solve real problems through social interaction and group collaboration to produce the final product at the end of learning (Blumenfeld et al., 1991; Bondi et al., 2014; Genc, 2015; Vaca Torres & Gómez Rodríguez, 2017). Regardless of the prominence of PBL in the conventional in-person class, its implementation in the online setting is vague.

Earlier investigation of PBL were mainly focused in the offline setting. A number of scientific studies on the field of PBL reported it brings positive impact on students' performance such as communication skills, improving problem-solving skills (Sultan & Javaid, 2018; Wong et al., 2014), enhancing students' creativity (Marshall et al., 2018), as well as developing teamwork skills (Asan, 2005; Kiraly, 2005; Sultan & Javaid, 2018). Previous research also claimed that PBL improves English proficiency by providing more useful language learning experiences (Chang, 2014; Farouck, 2016; X. Liu, 2016). In terms of PBL implementation, there have been numerous attempts to portray the practice of PBL (Aldabbus, 2018; Fatmawati, 2018; Syarifah & Emiliasari, 2019; Vaca Torres & Gómez Rodríguez, 2017). However, only few emphasize how PBL is conducted in the online setting. A study by Haniah et al. (2021) repoted five steps of Online PBL implementation, beginning with identifying the topic and goal, defining the project, rehearsing the product, presenting the product, and evaluating the

outcome. In addition, Liu et al. (2010) conducted a study focused on the implementation of Online PBL stressed that there were three stages of implementing PBL started from initial discovery, developing project activities, and it ends with final presentation and feedback.

In this study, online project-based learning defined as a learning method that involves students gaining knowledge to produce a final product through discussions and strategies guided by the teacher using students' prior knowledge with the help of online tools and platforms. While PBL and online learning have been widely explored per se, the blending of the two is rarely found and results in a lingering question on its implementation. There have been attempts to study Project-based Learning in the context of online PBL (Amissah, 2019; Cholifah et al., 2019; Yuliansyah & Ayu, 2021). However, the number is still limited and remains unclear due to the lack of study in this subject. Considering the limited study on the area of the online PBL, this study was aimed to add understanding on implementation within the online context and how the students perceive the implementation in an English Education Department involving 36 seventh-grade preservice teachers.

RESEARCH METHOD
Research Design
The method used in this study is a descriptive qualitative research method through case study. These research data were taken by observing the online classroom, Likert-scale questionnaire, and semi-structured interview. In addition, this research was conducted at one of the universities in Surakarta, Indonesia. The following were some of the reasons why the researcher picked the current participants: 1) The researcher had easy access to collect the data because of the outbreak of the COVID-19 pandemic situation, which limits the researcher's ability to collect data, 2) For the current semester, the only course that is eligible to conduct a project-based learning method is the Translation course.

Population and Sample
The participants of this research were the 36 seventh-semester preservice teacher enrolled at Translation course at the English Education Department of a University in Surakarta, Indonesia, followed by interviews with 6 selected participants using purposive sampling using 2 characteristics; he/she was actively involved in the group's work and he/she can communicate experiences and opinions in an articulate, expressive, and reflective manner. Purposive sampling was used in this study because the researcher wanted to have two certain classifications of respondents. In addition, the researcher purposefully chose the students of the English Education Department because they are prepared to become teachers (as they are called preservice teachers (PTs) in the current research) and their perception is important to develop a better project-based learning implementation in the online learning situation.

Instruments
This study was carried out using observation, questionnaire, and interview. In this this research, the observation was conducted in a Translation class consisted of 36 seventh-semester students. The purpose of the observation is to acquire how project-based learning was implemented in the context of online learning. The observation was conducted using Google Meet due to the online situation. The questionnaire, done through Microsoft Form, was shared to 36 students to identify students' perception on the teaching and learning process. Meanwhile, the observation was conducted using Google Meet to ease the researchers to record the interview data. The interview was in form of semi-structured interview to let the participants elaborate their answer.

Data Analysis

The data were analyzed using the interactive model (Miles et al, 2014). Following this model, the analysis was carried out through the stages of: 1) data reduction, 2) data display, and 3) data conclusion and verification. This interactive model allows the researchers to revisit certain stage when considered necessary.

Data collection involved started with summarizing all data collected in the field and focusing on key elements to search for themes and patterns through actions reducing and classifying data. Data categorization is done by data grouping and looking for patterns by writing or typing in the form of a description. The next step is displaying data resulted from reduction and categorization in a matrix based on certain criteria, followed by creating an explanatory sentence about the findings obtained from the results of observations, questionnaire, interviews, and documents in the field the before the data is compiled based on research focus. The last step is the data conclusion and verification. In this phase, the researchers conducted verification from research results. If the results of the data display show that the data obtained is sufficient and follows the required information, conclusions will be drawn using the theory and results of the data in the field. After the researcher finished the verification, the researchers discussed the findings from the field. These processes of analyzing the data required full attention through analysis which consequently takes a lot of time. However, these processes make the data to be more refined to the cycle of validation and analysis.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

Based on the findings of the researcher's observations, questionnaires, and interviews conducted about the PTs' perception of the implementation of online PBL as well as how online PBL was implemented, the result was as follows:

The Implementation of Online Project-based Learning

Previous studies had discussed about the implementation of PBL and a concept by Chua et al., (2016) was one of the methods in implementing PBL. However, due to the same stages between PBL and online PBL implementation, this study was using the same stages formulated by Chua et al., (2016). The stages were written as follows:

Meeting the problem

The first step of implementing PBL is to meet the problem that going to be discussed. To stir up PTs' critical thinking skills, a real-world scenario is presented as a topic. An "entry case" that attracts PTs can be one of the methods used by the lecturer to stimulate PTs' motivation on doing a project. It usually started with interesting or challenging questions. In this observation, the researcher noted that the lecturer began the project with an explanation of the problem/topic. The project that going to be done by the PTs is entitled "Final Fun Project: Indonesian Folklore Project". Lecturer also stated that the challenging question is "Are PTs able to produce a final product about translated Indonesian Folklore?". However, researchers find it quite difficult to recognize PTs' facial expressions to know their perception of the upcoming project.

Problem analysis and learning issues

In this phase, the lecturer was building motivation for the PTs to acquire new knowledge as stated in the purpose of the project. In the observation, the researcher found out the purpose of the project was "To apply the knowledge that has been obtained during the delivery of translation theory and introduce Indonesian culture that may not be known by people outside of Indonesia". Next, the lecturer showed the weekly tasks the PTs should have done as the steps of completing the project for the next meeting. The reason why PTs did not turn their camera on was that if they did, the signal would be delayed and it would be "lagged".

Figure 1. First project task

PTs were given tasks by the lecturer to form groups consisting of 6-7 students each afterward. PTs were given the freedom to choose their teammates and their title of the Indonesian Folklore by the lecturer as the realization of PBL characteristics "Extracting Students' Voice and Choice". Moreover, to keep track of the PTs and ensure that they are still on track with the project, the lecturer established weekly project supervision, which PTs could request outside of the weekly schedule.

Discovery and reporting

In the process of discovery and reporting, PTs conducted an inquiry to search for the information needed for the project within their group done online by using several media to support their online learning. The study revealed that communication, critical thinking, collaboration, and technological skills were highly needed in this phase because PTs did the project online and not face-to-face as stated by the PT:

"The aspects were very important. The communication aspect will relate to the effectiveness and the progress of the group. Collaboration is needed to complement each other's performance among members and critical thinking is useful for analyzing the translation of the selected folklore content. The technology aspect is also important because this project is carried out online so my group always uses technology in every process." (Interview_S3)

Communication, critical thinking, collaboration, and technological skills were the skills required in this online PBL process. The first activity is to form a group. With 36 students enrolled in the Translation class, there would be 6 groups consisting of 5-6 students with their group name and Indonesian folklore title. Communication skills were used in any kind of group work such as how the work will be divided, the design of the final project, etc.

Table 1
List of Indonesian Folklore Project groups

Group Name	Title
Anggur	Ibuku Seekor Kucing
Apel	Atu Belah
Mangga	La Upe
Persik	Asal Usul Sungai Banyuwangi
Talok	Si Lebai yang Malang

Technological skill means being able to use technological capabilities in this project because PTs will search for e-books on the internet using their laptops or cellphones. PTs also use Google Docs to collect weekly drafts of final projects that can be monitored by lecturers and researchers.
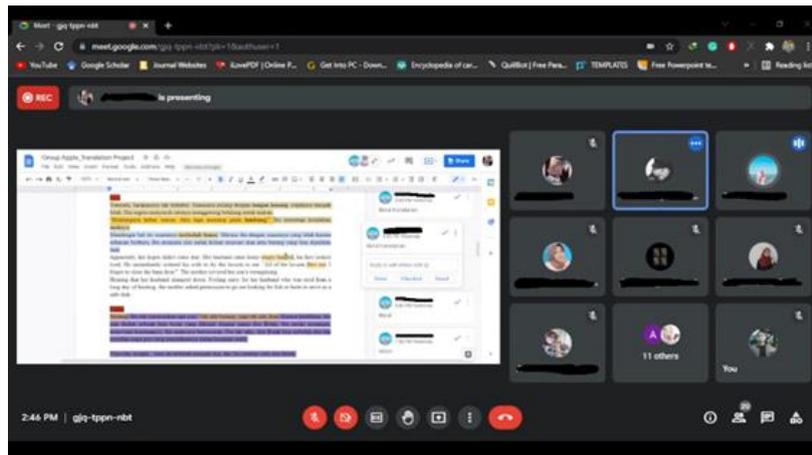
Figure 2. Weekly supervision

While doing the project, PTs must search for the information needed for their project on the internet based on the lecturer's sources or they could use their source. In this phase, critical thinking was important because in surfing the web, PTs could not just take what was displayed. They had to sort and filter the data to see if it was relevant or not. Besides, the lecturer also asked PTs to look for the translation aspects (collocation, idiomatic expression, etc.).

The next skill is the collaboration skill as PTs were done collecting the data from the internet. In this current study, PTs were using the Google Docs platform to work on the final project draft. The platform was chosen because it has the feature of being able to see who has contributed to the draft project. Their peers could also complement or add each other's work within the group to enrich the data. For the lecturer, this platform was helpful to monitor the drafts worked on by the PTs group.
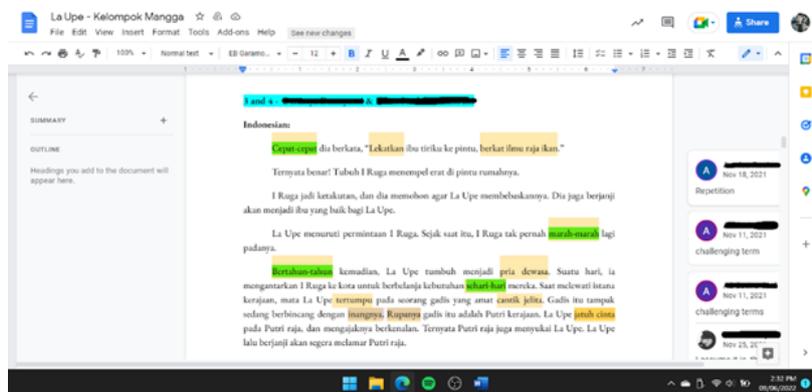

Figure 3. Google Docs used by one of the groups

In this phase, PTs reported their weekly progress on the Google Meet participated by all of the groups involved in this project. Through Google Meet, the lecturer gave feedback and advice based on the group's work shown through the share screen feature on the platform for each group starting from the first group until the last group.

Solution presentation and evaluation

Figure 4. Lecturer asked PTs to upload the project

The group presents its issue statement and suggested solutions to their teacher and peers. The presentation may contain mind maps, a record of their investigation process, ideas, and other evidence that leads to the findings. The main purpose of the presentation is to explain and defend the group's suggested solutions. Students must consider, assess, and evaluate their findings. After the numbers of feedback and revision for their group work were done, the lecturer asked PTs to check their work for the last time before they uploaded their work to the BookCreator website in the last meeting of the course. First, they were requested to create a new account for their project. After that, the lecturer sent the BookCreator class code so that PTs were able to upload the project to the BookCreator website. Lecturer expressed that asking the PTs to do the presentation after what they had been through just weighed the students down. Consequently, the lecturer stated that there was no presentation needed to be done because they reported their progress weekly and they did the project via Google Docs in which their peers and lecturer could monitor every group's project progress.
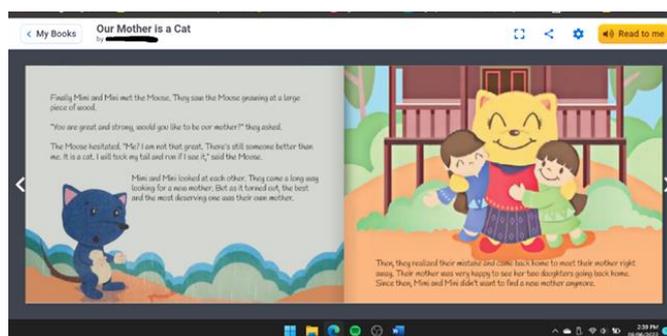

Figure 5. One of the PTs' group works on BookCreator

Preservice teachers' perception on the implementation of online project-based learning
After analyzing the data, the researchers were able to define how PTs' perception on the implementation of online PBL. The perception described as follows:
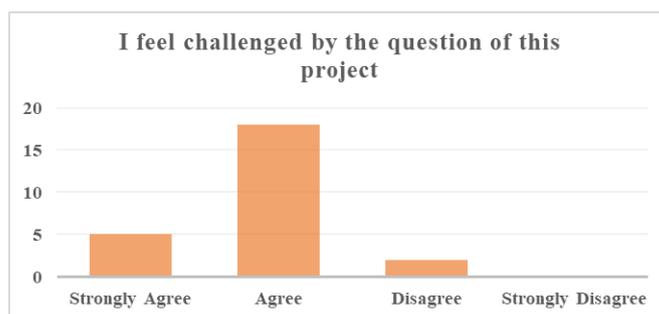
Online PBL is challenging

Figure 6. Chart of PTs felt that online PB: was challenging

Based on the statistical data, 72% of PTs stated that they were challenged during the process of the online PBL. Besides the project itself, some factors affected them such as lack of communication, require self-motivation, and privacy risk. When it came to the interview, all the 6 participants admitted that they had been taught using PBL in offline class situations.

> "I've been taught with PBL before but I think online PBL is more challenging because during discussions there is often a lack of communication due to signal interference which causes communication to be ineffective. Online PBL also feels short and requires self-motivation to complete the project." (Interview_S5)

The lack of communication was noticeable not only during the group discussion process but even during the weekly Google Meet meeting. The observation also revealed that the PTs were not turned on their camera while being in the Google Meet due to the signal problem. If the PTs turned their camera on, then the voice of the lecturer as well as their peers would be delayed. The self-motivation aspect also played a role in this project because if PTs' self-motivation was low, the group work would be delayed and it made the group work not effective.

Online PBL is interesting

The reason PTs are interested in the online PBL as follows:
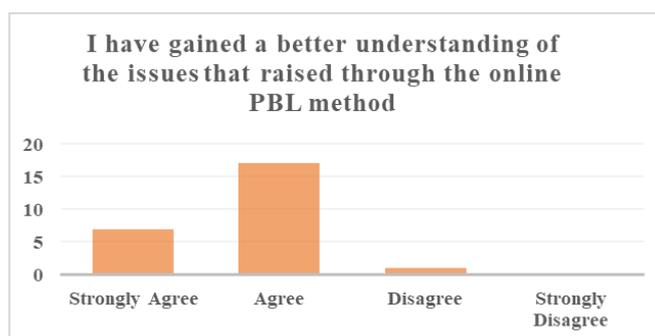- Gained a better understanding of a problem

Figure 7. Chart of PTs are gained a better understanding of a problem

96% of PTs claimed that they gained a better understanding of the topic they discussed. Exploring new things, flexibility, being free to explore, and producing real/memorable output is the reason behind it. PTs also mentioned that the lecturer gave them the freedom to create a group, free to choose the folklore title as well as the freedom to design it. One of the participants assumed that PBL is interesting due to its variety of learning when compared to the normal class

"PBL is not boring when compared to learning that is only centered on theory. In PBL I feel freer to explore what is being discussed and PBL also produces output that I think is more memorable and makes me understand more about the lessons I have learned." (Interview_S5)
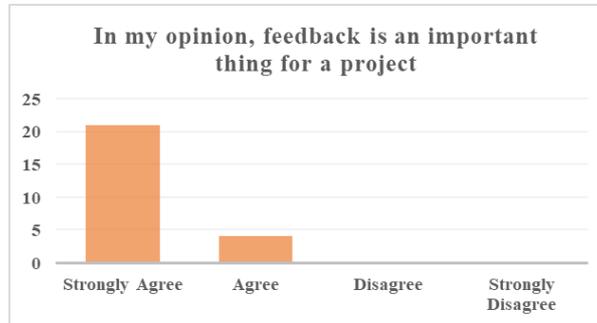
- Feedback helps PTs to learn

Figure 8. Chart of the importance of feedback

When it comes to the revision of the project, feedback comes in handy to help PTs determine their mistake in their project. The Likert scale showed that 84% of the PTs strongly agree that feedback is crucial for their work progress. In the interview, one of the PTs stated that feedback is used to fix the work's errors and even the group could acquire new insight.

"I think it's very important because, through feedback, we can improve things that we may not have thought of before." (Interview_S6)

Feedback is not limited to the group's work progress. In reality, when the group is unlucky, feedback could also be used by the lecturer as a medium to warn the inactive group member.
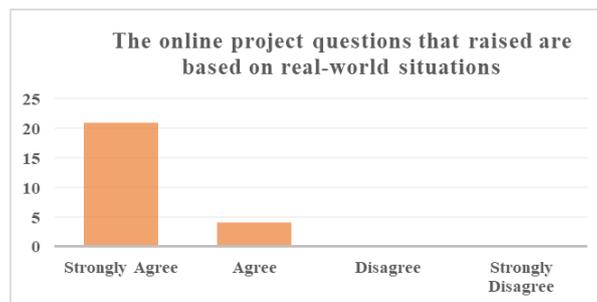
- Authentic learning

Figure 9. Chart of the authenticity of the online PBL question

The data showed that most of the PTs assumed that the project questions are based on the real world. This supports the importance of authentic material in the learning process, in this scenario is PBL. When the participant was interviewed, they expressed their feelings about the relevance of the topic raised in the project. According to the other participant, this project could also be the bridge to the fact that folklore in Indonesia is very diverse but there are still many of them that have not been explored yet. Some of them answered that they learned something in translation, that they cannot just directly translate from the source language to the target language because it could bring misinterpretation.

"It's relevant because we criticize the parts that cannot be translated directly into English." (Interview_S3)

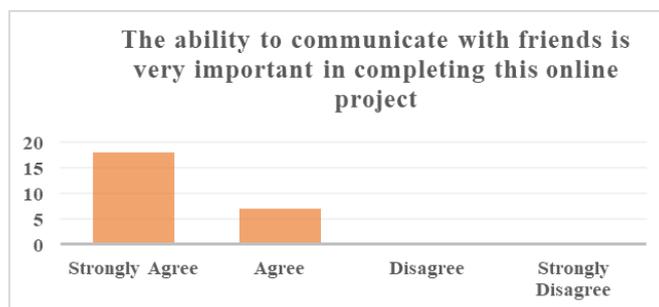*Improve communication, critical thinking, technological, and collaboration skills*

Figure 10. Chart of the importance of communication skill

The data showed that all of the participants agreed that communication is a vital part when completing the online project. PTs assumed that communication will relate to the effectiveness and performance of the group. If the communication is not effective, the work will not be synchronized and the group performance will not be well. PTs also claimed that critical thinking is important in this project. 84% of them believed that critical thinking helps them to complete the project in the aspect of translating the folklore from the source language to the target language. However, one of the subjects stated that in this online situation, albeit the critical thinking aspect is important, his group members did not want to be stressed with the work and they did not take the project take their time.

"In terms of critical thinking, it's very important, but in an online situation like this, my group members didn't want to be overburdened with assignments and in the end, they don't take their assignments seriously." (Interview_S6)
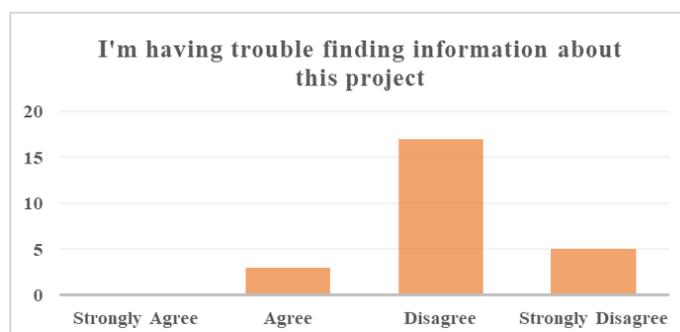

Figure 11. Chart of PTs' perception on collecting project information

In the context of collecting information for the project, the graph revealed that 88% of PTs did not find difficulties in collecting the information needed for the project. Aside from the sources given by the lecturer, PTs claimed that they also use Google to find their folklore title. PTs added that they used Canva to design; WhatsApp & Google Meet to communicate; Google Docs to work on the draft as well as the BookCreator as its final destination for submitting the project. YouTube and Any flip were believed to be the alternatives of the source according to S5. Furthermore, most of the PTs believed that they collaborate in their group. All of them worked with spreading the job desk through the random pick. When PTs were asked about the effectiveness of their group, 4 of 6 representatives stated that their group was quite effective to

handle the project albeit with a lack of communication. However, one of the subjects believed that still it was not as effective as Offline PBL.

> "It was effective, I think. Because every time there is a message in the WhatsApp group, other members will still contribute even though it's late. But still, it was not as effective as Offline PBL." (Interview_S3)

The online PBL advantages and challenges

While doing the project, the observation revealed that PTs conducted the learning-by-doing method. An example was when they were going to know about the information of their folklore title. They had to surf through some websites and other sources to collect the knowledge of the folklore. Moreover, the flexibility of online PBL is believed to be one of the pros of online PBL as they did not have to always be ready in front of their gadget. They could do their work in anytime and anywhere they want. Moreover, the current result study showed that PTs assumed that online PBL is a fun learning method. Besides the mentioned aspect, the freedom of PTs choice given by the lecturer is the factor why PTs believed that PBL is fun. In completing their work, PTs were given the freedom to creatively design their work as well as the freedom to choose their folklore title. Furthermore, PBL is also well-known for its noticeable learning through its final project. The output produced from the learning is believed to be the reason why PTs feel like they have learned something and they produced something. Through the following graph, PTs stated that they gained a better understanding of the topic through online PBL.

Albeit the online PBL seems to have success in the online learning, the current study reveals the cons of the online PBL implementation. Online PBL stuck with the use of technology in its implementation. By that means, the lack of technical skills could affect the accomplishment of online PBL. In this study, PTs stated that some of their group members did not know how to use the technology or how the website worked. The ineffective communication also played a role in this situation. Due to the gap in time and place of each PT, they were forced to the communication process through online platforms such as WhatsApp and Google Meet. This situation was worsened by the lack of motivation by the PTs themselves. The reason why some of their group members lack motivation is due to ineffective communication. This circular problem needs to be taken care of to create an effective online PBL implementation.

PTs' suggestion for the more effective online PBL

For the lecturers, PTs believed that lecturers/teachers could introduce the source of media that might be helpful to be used by the PTs in completing the project. Furthermore, PTs stated that the lecturer could also ask the PTs to make an output that might be useful to show students' understanding of their work.

> "A project must also have the output that can show students' understanding of the project they are making. For example, verbal practice/video summaries about their project." (Interview_S5)

In addition, PTs suggested the group formation be picked by the lecturer to avoid bias. PT mentioned that his group consisted of the "unchosen" or the PTs that did not have the group yet. This statement was also supported by another subject which claimed the future PBL should feature a fair group formation and choose the coordinator for each group if the project wanted to be more effective.

> "The non-random selection of group members makes each group have an unbalanced member quality." (Interview_S6)

"With the division of teams evenly and balanced and determined who will coordinate, I believe online PBL will be able to run more effectively." (Interview_S4)

Discussion

For the implementation of online PBL, the stages used in this situation were more or less the same as those used in the offline PBL constructed by Chua et al., (2016). However, there were differences in the detail of its implementation that still the previous study did not cover. In this online situation, the output produced by the PTs was considered as online products such as pdf, video, and any other soft files (Haniah et al., 2021; Yuliansyah & Ayu, 2021). This was because when the online situation occurred, PTs and lecturers could not meet with each other in real life, therefore the final output of this study was uploaded on Book Creator to ease the evaluation and flexibility to access the final products. Furthermore, the communication of online PBL in this current study is labeled as ineffective communication due to the poor internet connection and other facilities as it was experienced in the previous studies (Aldabbus, 2018; Yuzulia, 2021). In the interview, PTs admitted the group formation was handled by the PTs themselves and some interviewees stated that there was inequality of member skills in each group. There were groups made up of experienced members and groups made up of PTs with less ability. The interviewees believed that there would be fair if the grouping process was done by the lecturer to avoid bias in choosing the member. When it came to the presentation, the lecturer expressed that no presentation needed to be done due to their weekly progress report in Google Meet, and their easily-monitored project was done in Google Docs . On the other hand, a study done by Haniah et al. (2021) stated that the students were asked to create 2 speech videos (persuasive and informative) and then submitted to Google Drive. This showed that online PBL could have 2 last stages outcomes: the presented and submitted (Haniah et al., 2021; Yuliansyah & Ayu, 2021), and the submitted one as this study and (Aisuwarya, 2022). Furthermore, previous studies had several arguments about the amount of the stages. For instance, Liu et al., (2010) stated that there were three stages of online PBL, while a study conducted by Haniah et al., (2021) stressed in implementing the online PBL, there were five stages to conduct it.

From the PTs' perception, the findings showed that there are some excitements in using online PBL. The freedom is given by the lecturer such as the formation of the groups, the flexibility of doing the project, learning something new through exploring the internet while searching the information of the project, a teamwork approach, and meaningful learning. PTs also stated that online PBL is one of the effective ways to implement the knowledge due to its learning-by-doing system. In addition, online PBL is also supporting the development of the technology because it uses various media and technology in its implementation as well as the online learning's flexibility of spaces (Lasamahu et al., 2021; Yuzulia, 2021). In this study, PTs believed that the project is relevant for them, especially as the person who is going to be a teacher. They stated that the project could be their inspiration for their learning material. From the feedback aspect, PTs also assumed that the feedback used in the process of online PBL helped them to gain new insight into doing their project. They believed that feedback is a vital part of the implementation of PBL, this supports the previous study conducted by Hugerat (2016) investigated how teaching science using project-based learning strategies affects the classroom learning environment. The result showed sharing activities and feedback creates a positive atmosphere in the classroom, promotes better teacher-student relationships, and further enhances proactive learning attitudes. However, there were some challenges stated by PTs. Lack of communication is still one of the challenges of using the online PBL (Alawamleh et al., 2022). This lack of communication held up the effectiveness of the group work within the

project. As the result, the output of the group will not be satisfying. These conditions are followed by the privacy risks faced by the PTs in doing the project within the online platform (Chen & He, 2013). As they were using the internet to perform their group project, there were risks of their credentials might be stolen by the other person (Sari et al., 2020). Furthermore, online PBL requires self-motivation to be completed due to its long-time learning. As Gülbahar & Tinmaz (2006) previously mentioned in their study showed that PBL makes students lose self-motivation, this current research also faced the same problem. PTs assumed that their peers in their group lost motivation while doing this project. However, one of the interviewees believed that this online PBL is not as challenging as the offline PBL because the output of the project is usually a soft file (pdf, jpg, or word).

The discussion concluded that the changes of teacher and learning setting do not affect the use of the PBL. It means that with a little tweak, mainly in terms of technological usage, grouping and communication aspect, PBL may be successfully implemented in the online setting.

CONCLUSION

This study concludes that preservice teachers perceive online PBL positively. They noticed that online PBL is a challenging yet fun learning method that requires them to act with learning-by-doing. The things such as the freedom given by the lecturer, the authentic learning materials, and the supportive help of the lecturer as well as keeping the learners in line with the project are seen as the remarkable ways to implement the knowledge due to its learning-by-doing system. They saw online PBL as one of the authentic learning experiences because they could produce output at the end of the lesson. The implementation of online PBL in this study is more or less the same as the traditional PBL with few differences in the detail of its enactment. However, this method is still having its several drawbacks in its implementation especially in the online learning situation to become one of the alternative solutions.

Earlier studies (Asan, 2005; Chang, 2014; Farouck, 2016; Kiraly, 2005; X. Liu, 2016; Marshall et al., 2018; Sultan & Javaid, 2018; Wong et al., 2014) have already showed that PBL gave positive impacts on students' performance. However, it is also important to know how the students perceive PBL and how the PBL is implemented. Thus, this study implies that the changes of teaching and learning setting do not affect the suitability of the PBL. It means that with a little adjustment, mainly in the aspect of technological usage, grouping and communication, PBL might be successfully implemented in the online setting. From the examined data, because students were able to produce something at the end of the course, they saw online PBL as an authentic learning experience. Furthermore, the implementation of online PBL is more or less the same as the traditional offline PBL. Thus, if the teacher is planning to use PBL in the online learning situation, the teacher could just use the traditional PBL with some minor differences and needs to have some changes in order to be suitable in the online learning.

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