Technology Assistance for Successful Project-Based Learning Implementation During Covid-19 Outbreaks

Ayu Fatmawati[a], Bachrudin Musthafa[b] and Wawan Gunawan[c]

*Department of English Education, Faculty of Language and Literature Education, Universitas Pendidikan Indonesia,
Dr. Setiabudi Street, Bandung, Indonesia*

Keywords: Technology in Education, Technology Assistance, Project-Based Learning.

Abstract: Implementing project-based learning during the covid-19 pandemic is a challenge. Thus lecturers need technical assistance to make it run well. This article describes how the lecturers used technology assistance while implementing project-based learning. It was a qualitative method with a descriptive approach. Observation, interview, and document analysis were used to gather the data. The result showed that; technology assistance was found in each stage of project-based learning, such as preparation, planning, creating a project, monitoring and revising, and evaluation. In addition, various technology was used during the implementation of project-based learning, such as Google Search engine, Google Form, Zoom Meeting, Instagram, and YouTube.

1 INTRODUCTION

In preparing students to face the challenges of the 21st century, teachers must equip students with basic skills (hereafter is 4Cs) such as communication, critical thinking, collaboration, and creativity (Partnership for 21st Century Learning, 2015). However, the 4Cs can only be obtained when students actively participate in learning (Rahmawati, Suryani, Muhammad, & Sukarmin, 2020). Furthermore, 21st-century learning forces teachers to design their learning in a way that will enable them to prepare students for the twenty-first century's workplace (Jia, Oh, Sibuma, LaBanca, & Lorentson, 2016).

One of the methods that can facilitate students to actively engage in the learning process and bring the workplace environment into the learning process is Project-based Learning (hereafter PjBL). PjBL allows the students to design, plan and carry out a project that produces various outputs, such as a product, publication, or presentation (Patton in Riswandi, 2018). Language expertise emphasizes that PjBL is a task with a planned outcome conducted in and outside the classroom (Sultana, 2015).

Nevertheless, implementing PjBL since the Covid-19 outbreaks is not easy.

During the Covid-19 outbreaks, most countries apply community activities restrictions enforcement (PPKM) to reduce the transmission rate of Covid-19. Therefore, online learning is required to facilitate teachers in delivering the material to students. Implementing online learning forces teachers to use technical assistance in the teaching-learning process. Technology assistance in the teaching-learning process raises a new term called educational technology. The 2008 AECT defines educational technology as the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources (Januszewski & Molenda, 2008). In addition, technology learning assistance is the effort to integrate the teaching-learning process with educational technology.

Some studies focus on the investigation of technical assistance in online learning. The first study, "Experiencing technology integration in Education: children's Perceptions," found that students in this study were more independent when they learned using computers (Baytak, Tarman, &

[a] https://orcid.org/0000-0003-2044-359X

[b] https://orcid.org/0000-0001-7662-6825

[c] https://orcid.org/0000-0003-1792-8350

Ayas, 2011). The second study, "Prospective teachers' perception of barriers to technology integration in education," revealed that for preservice teachers, parents and security were barriers to integrating technology in education (Dinc, 2019).

By recognizing the critical role of technology in the successful teaching-learning process, the present study aims to investigate the technical assistance in implementing PjBL. Next, this research is guided by the question: "How is technology-assisted learning during the implementation of project-based learning?".

2 LITERATURE REVIEW

2.1 Project-Based Learning

Since there is no absolute definition of PjBL, experts define PjBL by describing its characteristics and activities. PjBL contains at least three constructivism-related qualities: context-specific, student-centered, and learning that involves sharing knowledge and understanding (Coco in Kokotsaki, Menzies, & Wiggins, 2016).

There are three main activities in PjBL coverage: beginning in the classroom, moving out into the world, and returning to the classroom (Fried-Booth in Stoller, 2002). Furthermore, the other study highlights six PjBL activities: preparation, planning, research, conclusions, presentation, and evaluation (Papandreu in Thuan, 2018). Then, the other research study stresses the activities of PjBL, covering essential questions, planning, scheduling, monitoring, assessment, and evaluation (Mayasari, 2017).

Considering the explanation above, it can be concluded that activities in PjBL implementation can plausibly vary, and teachers can design classroom activities tailored to the student's learning needs.

2.2 Why Teacher Needs Technology Assistance in the Implementation of PjBL?

The reason for using technology in the classroom is to help students develop the skills demanded by the 21st-century workforce (Rahmawati et al., 2020).

There are several ways that technology can be incorporated into education. It should offer a rich learning environment, help students gain a multidimensional understanding of a complicated phenomenon, encourage a flexible arrangement of information for challenging learning materials, and

accommodate various demands based on individual characteristics (Pilten, Pilten, & Sahinkaya, 2017).

The following reason is that online learning cannot run optimally without the help of technology. To slow the spread of Covid-19 during epidemics, most nations implement PPKM. Therefore, online education is necessary to help teachers provide learning.

3 METHOD

3.1 Research Background and Setting

The study was carried out at the English Education Study Program at a private university in East Java. The teaching-learning process was carried out online during the research. The qualitative method was used to investigate the integration of technology in the implementation of PjBL. The case study approach is chosen because it aims to understand complete and in-depth cases (Hamied, 2017).

3.2 Participant

The research participant was an English lecturer in one of the private universities in Kediri, East Java, Indonesia. The participant was chosen because she used technology assistance to implement PjBL in her teaching-learning process.

3.3 Instrument, Data Collection, and Data Analysis

Three instruments were used to gain data: observational form, interview guide, and document. Data were collected through the observational form, interviews, and documentation. The observation was carried out during one semester. While observing, the researcher records the activities and takes some notes. The interview was unstructured to clarify the data obtained in the observation. In the end, the researcher was asked for supporting documents such as lesson plans, students' project, and students' scores.

The data from the document analysis were used as secondary data in support of the primary data. The collected data from the observation were then analyzed by storing and classifying them into some points. First, the researcher transcribes the observation data. Then, it was continued by adding pattern codes (categories or themes) to analyze the data. These stages were needed to ascertain the trustworthiness of the data analysis process.

4 FINDINGS AND DISCUSSIONS

This section presents the answer to the research question: "How is technology-assisted learning during the implementation of project-based learning"?.

4.1 Findings

The result showed that technical assistance was found in all stages of project-based learning: preparation, planning, creating a project, monitoring and revising, and evaluation. However, the technology used in all stages was various. The choice of technology used in each stage was based on the needs. A summary of technology assistance learning is depicted in Table 1.

Table 1: Technology Assistance learning.

PjBL Stages	Technology Assistance
Preparation	Students had to send their reasons for choosing one of the writing professions through Google Forms.
Planning	Students conducted their research (using a search engine machine) on the writing profession that they had chosen. Then, students have to compose an essay draft.
Creating project	The lecturer showed an example of a video essay carried out through a Zoom meeting.
Monitoring and revising	Students had to report their progress regularly through Google Forms.
Evaluation	Students had to upload their products on Instagram and YouTube.

The first technology assistance was found in the preparation stage. In this stage, the lecturer sent a file (through WhatsApp Group) entitled "20 jobs for the writer," including a task related to the final project, and asked the students to read the file. After the reading activity, the students had to do a task. The task was to choose one writing job they were interested in. Then, the students had to work on their paper explaining the reasons for choosing the job and send their work via the Google form to which the lecturer provided the link. The second integration was found in the planning stage. In this stage, the lecturer instructed students to write a draft. However, before the composition of the draft, the students were asked to do mini-research related to the writer's chosen job using search for information with the help of search engines (e.g., Google Search) for information compilation.

The third integration was found in the creative project stage. In this stage, the lecturer assigned students to do a project in the form of a video essay from the essay they had previously written. First, the lecturer showed an example of a video essay and then discussed what items had to be displayed in the video essay. This activity was carried out through a Zoom meeting. The fourth integration was found in the monitoring and revising stage. The students had to report their progress regularly through Google Forms during the project completion. The lecturer would read the report and give some notes to be revised. It was to minimize errors before the project submission. The last technology assistance was found in the evaluation stage. There were two versions of the video essay: the short version and the full version. The short version was uploaded on Instagram, and the full version was uploaded on YouTube.

In addition, the lecturer used different technology in each activity of PjBL. There were five technologies used in the implementation of PjBL, and are Google form, Google search engine, Zoom meeting, Youtube, and Instagram. The lecturer chose different types of technology for each PjBL activity for utility purposes.

4.2 Discussions

The study aimed to investigate the technical assistance in online learning, especially during the implementation of project-based learning. The findings showed that technology assistance learning was found in every stage of PjBL implementation. First, in the preparation stage. It was found that the lecturer integrated two technologies in the teaching-learning process: delivering materials and collecting the task. The lecturer chose different technology because of utility purposes. Second, in the planning stage, the lecturer tried to simplify the mini-research process using technology assistance, namely a search engine machine. It was to help students save more time and money rather than conducting mini research in the library following the high risk of Covid-19 transmission. Thirdly, in creating the project stage, the technology assistance optimized the lecturer in facilitating the students through sharing the information about the expected product of the project. In this stage, the lecturer could also open or accommodate the question-answer session so the students understood their project well.

Fourthly, in the monitoring and revising stage, the technology assistance enabled the lecturer to monitor the students regularly. The lecturer had the authorization to design the activities of PjBL in the classroom but then allowed the students to complete the project outside the class under supervision due to

the limited duration in the classroom (Sultana, 2015). Finally, in the evaluation stage, uploading the final project on Instagram and YouTube gave some benefits for both lecturer and students, such as helping the students collect the project without time and spatial restrictions and helping the lecturer evaluate the project everywhere. It enabled more viewers to see or assess the result of the student's project.

5 CONCLUSIONS

It can be concluded that technology-assistance learning can be implemented in all project-based learning stages. Besides, the lecturer can utilize various technology for learning and students' needs. All in all, technology assistance brings advantages for lecturers and students as long as there is an anticipation of the drawbacks or barriers and its utility in teaching-learning.

REFERENCES

Baytak, A., Tarman, B., & Ayas, C. (2011). Experiencing technology integration in education: children's perceptions. *International Electronic Journal of Elementary Education*, *3*(2), 139–151.

Dinc, E. (2019). Prospective teachers' perceptions of barriers to technology integration in education. *Contemporary Educational Technology*, Vol. 10, pp. 381–398. https://doi.org/10.30935/cet.634187

Hamied, F. A. (2017). *Research Methods: A Guide For First-Time Researchers*. Bandung: UPI Press.

Januszewski, A., & Molenda, M. (2008). *Educational technology: A definition with commentary*. New York: Lawrence Earlbaum Associates.

Jia, Y., Oh, Y. J., Sibuma, B., LaBanca, F., & Lorentson, M. (2016). Measuring twenty-first-century skills: developing and validating a scale for in-service and pre-service teachers. *Teacher Development*, 229–252. https://doi.org/doi.org/10.1080/13664530.2016.11438 70 Downloaded

Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based Learning: A review of the literature. *Sage*, *19*, 267–277.

Mayasari, T. (2017). *Efektifitas Program Perkuliahan IPA Terapan Melalui Pembelajaran Berbasis Proyek Dengan Pendekatan STEM Untuk Meningkatkan Kreativitas Literasi STEM, dan Penuasaan Konsep Calon Guru*. Universitas Pendidikan Indonesia.

Partnership for 21st Century Learning. (2015). P21 Partnership for 21st-century learning framework definitions. *Partnership for 21st Century Learning*, p. 9. Retrieved from http://www.p21.org/documents/ P21_Framework_Definitions.pdf

Pilten, P., Pilten, G., & Sahinkaya, N. (2017). The Effect of ICT Assisted Project Based Learning Approach on Prospective ICT Integration Skills of Teacher Candidates. *Journal of Education and Training Studies*, *5*(3), 135. https://doi.org/10.11114/jets.v5i3.2051

Rahmawati, A., Suryani, N., Muhammad, A., & Sukarmin. (2020). Technology-Integrated Project-Based Learning for Pre-Service Teacher Education: A Systematic Literature Review. *Open Engineering*, *10*(1), 620–629. Retrieved from https://www.degruyter.com/document/ doi/10.1515/eng-2020-0069/html

Riswandi, D. (2018). The Implementation of Project-Based Learning To Improve Students' Speaking Skills. *International Journal of Language Teaching and Education*, *2*, 32–40. Retrieved from http://creative commons.org/licenses/by/4%0A.0/

Stoller, F. L. (2002). Project Work: A Means to Promote Language and Content. In *Methodology in Language Teaching An Anthology of Current Practice* (pp. 107–120). https://doi.org/10.1017/CBO9780511667190.016

Sultana, M. (2015). Proposing Project-Based Learning as an Alternative to Traditional ELT Pedagogy at public colleges in Pakistan. *International Journal for Lesson and Learning Studies*, *4*, 155–173. https://doi.org/ 10.1108/IJLLS-09-2013-0049

Thuan, P. D. (2018). Project-Based Learning: From Theory to EFL Classroom Practice. *Proceedings of the 6th International Open TESOL Conference*, 327–339.