Jurnal Pendidikan Indonesia
Volume 11, Number 4, 2022 pp. 610-617
P-ISSN: 2303-288X E-ISSN : 2541-7207
Open Access: https://dx.doi.org/10.23887/jpi-undiksha.v11i4.53879

A Training Module for Project-Based Learning with Google Workspace in the *Merdeka* Curriculum Management

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ARTICLE INFO

Article history:
Received September 08, 2022
Revised September 11, 2022
Accepted November 09, 2022
Available online December 25, 2022

Kata Kunci:
Project Based Learning, Google Workspace, Kurikulum Merdeka, Modul Pelatihan

Keywords:
Project Based Learning, Google Workspace, *Merdeka* Curriculum, Training Module

ABSTRAK

Sejak memasuki abad ke-21, kurikulum di Indonesia terus melakukan inovasi untuk mewujudkan pembelajaran yang berpusat pada siswa melalui Kurikulum Merdeka. Untuk mewujudkan hal tersebut, guru perlu memiliki kecakapan dalam pemanfaatan teknologi sehingga dapat memfasilitasi siswa untuk dapat mencapai keterampilan abad ke-21 melalui project based learning. Dalam penelitian ini dilakukan pengembangan modul pelatihan project-based learning berbasis Google Workspace dalam manajemen Kurikulum Merdeka. Model penelitian dan pengembangan mengacu pada langkah-langkah penelitian Borg and Gall meliputi: pengumpulan informasi, perencanaan, pengembangan produk awal, pengujian lapangan awal, revisi produk utama, uji coba lapangan utama, dan revisi produk operasional. Penelitian ini menggunakan metode kombinasi dengan desain sequential exploratory. Hasil penelitian dan pengembangan menunjukkan bahwa validitas materi pelatihan sebesar 73,33% dengan kategori layak, validitas modul pelatihan mencapai 90% dengan kategori sangat layak, dan validitas media mencapai 77% dengan kategori layak. Telah dilakukan uji coba lapangan awal dengan persentase kesiapterapan 86,75%. Uji coba lapangan utama menunjukkan persentase kesiapterapan 91,63%. Modul pelatihan yang dihasilkan memiliki keunggulan dapat diakses kapan saja dan dimana saja, serta dapat diterapkan dalam pelatihan bagi guru secara mandiri maupun berkelompok.

ABSTRACT

Since entering the 21st century, the curriculum in Indonesia has continued to innovate to realize student-centered learning through the *Merdeka* Curriculum. To achieve this, teachers need to have competence in the use of technology to facilitate students to be able to achieve 21st-century skills through project-based learning. This study developed a training module for project-based learning with Google Workspace in the *Merdeka* Curriculum management. The research and development model refers to the Borg and Gall steps, including: information gathering, planning, preliminary product development, preliminary field testing, main product revisions, main field trials, and operational product revisions. This study uses a mixed method with a sequential exploratory design. The results show that the validity of the training materials is 73.33% in the feasible category, the validity of the training module reaches 90% in the very feasible category, and the validity of the media reaches 77% in the feasible category. The preliminary field trial was conducted with a percentage of readiness of 86.75%. The main field trial shows a percentage of readiness of 91.63%. The resulting training module has the advantage that it can be accessed anytime and anywhere and can be applied in training for teachers independently or in groups.

1. INTRODUCTION

Since the beginning of the 21st century, the educational system in Indonesia has continued to advance by introducing novel approaches centered on making the students' educational experiences more meaningful (Keiler, 2018; Mardhiyah, R. H., Aldriani, S. N. F., Chitta, F., & Zulfikar, 2021; Sanjaya, 2015). These novel approaches range from the curriculum of 2013 to the *Merdeka* Curriculum. The *Merdeka* Curriculum is a follow-up to the effort to improve the curriculum undertaken in 2013. Some of the characteristics of the *Merdeka* Curriculum are as follows: (1) the development of soft skills and character through project-based learning for strengthening the Pancasila student profile; (2) a focus on essential material so that there is enough time to study basic competencies in depth such as numeracy and literacy; and (3) the freedom for teachers to carry out differentiated learning by students' needs (Aziz, 2011;

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Hidayati et al., 2022; Indarta et al., 2022). In implementing a student-centered curriculum, the teacher's role is not as a designer but as a facilitator to to help students achieve 21st century capabilities (Önür & Kozikoğlu, 2020; Stehle & Peters-Burton, 2019). It is possible to say that the adoption of the *Merdeka* Curriculum results in creating a learning environment centered on the students and providing students with skills relevant to the 21st century.

Project-based learning is one of the student-centered learning approaches. Project-based learning defined as a style of instruction in which students take the initiative to formulate and carry out their own learning goals (Eliyasni et al., 2019; Kokotsaki et al., 2016). Previous study states that project-based learning focuses on students' learning process (Aldabbus, 2018). At the same time, the teacher acts as a student supporter during the learning process, which emphasizes the completion of projects over the study of textbooks, puts students in charge of their education, and prioritizes the completion of projects over the study of textbooks (Beier et al., 2019; Mahasneh & Alwan, 2018). The project-based learning empowers students to take responsibility for their education and focuses on completing projects as a learning process (Aksela et al., 2019; Ngereja et al., 2020). Project-based learning has been shown to positively affect students' growth in cognitive, affective, and motor skills. Project-based learning increases learning accomplishments in aspects of Higher Order Thinking Skills (HOTS), including the dimensions of thinking identified by Anderson and Krathwohl at the 4th level to 6th level, specifically analyzing, evaluating, and creating (Guo et al., 2020; Santyasa et al., 2020). From these various definitions, project-based learning is a student-centered learning approach that allows students to analyze, evaluate, and create the knowledge they have acquired through a project with teacher assistance.

Technology is vital in establishing a communication space that can be accessed anywhere. Technology is crucial for various reasons, one of which is that it allows people to communicate regardless of their physical location (Daud, 2019; Dočekal & Tulinská, 2015). To begin, in terms of what is practically possible, there will be situations in which the instructor cannot be physically present in the classrooms that are conventionally arranged. In addition, from a pedagogical point of view, the availability of online or virtual classrooms will provide several benefits to the teaching and learning process (Iftakhar, 2016; Shahroom & Hussin, 2018). One of these benefits is that it will lessen the level of social anxiety that kids have when they are in an environment similar to a classroom. One of the technologies that are frequently employed in educational institutions is Google Workspace. Google Workspace helps in the teaching and learning process. The educational community is the primary target audience for the software Google Workspace, designed and built by Google (Masharova et al., 2020; Muñoz-Saavedra et al., 2020). It is designed to make it less complicated for teachers to incorporate various forms of technology into their lessons. Google Workspace allows it to build digital synchronous and asynchronous collaboration using Google Docs, Google Sheets, Google Slides, and other Google products (Krutka et al., 2021; Semeraro & Moore, 2016). The software utilized for Google Workspace is reasonably simple and has various uses.

In addition, previous study stated that Google Workspace gives the teacher the ability to build higher-quality interactions with students (Gupta, A., & Pathania, 2021). Furthermore, other study describe how using Google Workspace might enhance one's ability to think creatively and provide an example (Yustina et al., 2020). In addition, the use of Google Workspace in project-based learning has several benefits, including the following: (1) can be prepared more quickly and can share information such as tasks, announcements, and questions; (2) saves time and paper and allowing document management in one place; (3) better management, tasks can be seen on the task page, the activity calendar and material are stored automatically; (4) improved communication and input, the activity calendar and material are stored automatically in the Google Drive folder, and The instructor can rapidly observe who has finished the work and who has not through the use of Google Classroom, and immediately provides value and feedback in real-time; (5) Google Classroom is safe and economical, as courses are provided at no cost and do not contain any adverts (Harsanto, 2014; Setiadi et al., 2021). In light of the numerous advantages offered by GoogleWorkspace, this software program has the potential to be utilized in the delivery of project-based education.

Preliminary studies through interviews conducted at Karangturi High School Semarang provide an overview of the field that the direction of learning refers to the implementation of the *Merdeka* Curriculum, which implemented in the 2022/2023 Academic Year. Teachers have implemented project-based learning even before the implementation of the *Merdeka* Curriculum. The principal invites education practitioners to provide project-based learning training to equip teachers with project-based learning. However, the training did not significantly impact teachers because it was conducted online, only held one meeting, and had not yet integrating project-based learning with the use of technology. Implementing the *Merdeka* Curriculum requires schools and teachers to learn independently in implementing project-based learning. However, no particular training module is provided to help teachers develop competence in managing *Merdeka* Curriculum. According to the teacher, the project-based learning guidebook provided by the

government is still too general and does not provide a specific description of the project-based implementation. From the evaluation questionnaire distributed by the school, the students also thought that project-based learning created interest in learning.

Base on those problem and explanation from previous studies the researcher are interested in conducting this study. This study's objective is to describe the development of the Google Workspace-based Project Based Learning Project Learning Module in the *Merdeka* Curriculum Management following Borg and Gall's research and development steps. It is hoped that through this research the ability to master technology can be integrated into the teaching and learning process, even though it has been carried out face to face.

2. METHOD

The type of research used is research and development. In this study, the development of physical products in the form of project-based learning training modules with the renewal of technology integration in the form of Google Workspace applications. The method used in this research is a mixed method with a sequential exploratory. Mixed method combines qualitative and quantitative research methods to answer research problems more accurately (Sugiyono, 2018). The research was conducted at SMA Karangturi Semarang and the High School Mathematics Teacher Association of Semarang in the odd semester of the 2022/2023 academic year. The research subject is a Google Workspace-based project-based learning training module in the management of the Independent Curriculum.

The research and development model used follows the Borg and Gall model. The Borg and Gall model was used in this study because it presents more systematic and detailed research and development steps with more apparent stages, making it easier for researchers to use them (Daryanto, 2013; Gall et al., 2003).

3. RESULT AND DISCUSSION

Result

Research and Information Collecting were carried out at Karangturi High School Semarang with data collection including needs analysis, documentation studies, and field observations. The researcher made the field observation before the training activity was carried out. This observation was made in the form of a direct survey of trainees. It was related to implementing project-based learning with Google Workspace training in managing the *Merdeka* Curriculum. This training was carried out in November. During the *Kurikulum Merdeka*, the survey inquired mostly about respondents' experiences with communicating with one another through the usage of Google Workspace technology. According to the survey findings, the educator had used technology in the classroom; nevertheless, they did not use Google Workspace.

For instance, 62.5% of respondents stated that they spoke with one another daily via email, chat, or SMS. 62.5% of those who participated in the survey had also communicated with others through the telephone. The usage of communication media in the form of video calls is utilized by as many as 37.5% of respondents every week, specifically to communicate with one another. The need analysis results become the basis for planning the training module for project-based learning with Google Workspace. Google workspace is used as project management-based learning media. The module consists of four main topics: project-based learning, google workspace, project-based learning based on Google Workspace for independent curriculum extracurricular learning, and project-based learning based on Google Workspace for project management, strengthening the student profile of Pancasila. Products in the form of training modules is show in Figure 1.

In developing a product's preliminary form, validity tests were carried out by material experts, module experts, and media experts who were competent in their fields. The validity test was carried out on four aspects of the training module namely self-contained, stand-alone, self-instructional, user-friendly, and adaptive. The results of the training module validity test are shown in Table 1.

Table 1. The Result of Training Module Validity Test

Expert	Percentage of Validity	Description
Material expert	73.33%	Feasible
Module expert	90.00%	Very feasible
Media expert	77.00%	Feasible

Figure 1. Products in the Form of Training Modules

Preliminary field testing was carried out and twelve respondents had already registered to take part in the training. Blended learning was chosen as the training method with online activities and face-to-face at Karangturi High School Semarang, delivered by Nana Sumarna as the trainer. The trainer chosen was from the curriculum development team at Karangturi High School Semarang. In addition, the trainer began the session by conducting the first direction of the relevance of this training and providing information that had been prepared in advance.

Following the trainer's presentation of the training materials, the participants spent time putting their newly acquired knowledge to use by engaging in some data management practice on Google Workspace. In addition, participants receive guidance on how to make the most out of their learning accounts by utilizing Google Classroom, Google Meet, Google Calendar, and Gmail. This guidance is combined with the participants' creation of individual accounts for themselves. The training ran for two hours, and it included a question and answered session with the trainer and the trainees, who were highly enthusiastic about the event. At the end of the training, the participants provided a test of the readiness of the training module via Google Forms with the results as shown in Table 2.

Table 2. The Result of Readiness test in Preliminary Field Testing

Aspect	Percentage of Readiness
Self Instructional	86.00%
Self Contained	86.67%
Stand Alone	86.67%
Adaptive	87.50%
User Friendly	87.00%
The Percentage of Readiness in Preliminary Field Testing	**86.75%**

Base on Table 2 show the readiness test results, the researcher conducted a focus group discussion (FGD) with trainers and trainers to confirm the findings and accommodate suggestions for revision. The results of the FGD became a reference for the primary product revision. Improvements include minor grammar fixes, such as typos and font color selection. The product in the form of a revised training module is then used in main field testing.

The main field testing was carried out at the High School Mathematics Teacher Association of Semarang asynchronously through WhatsApp Groups and synchronously through Zoom Meetings. The total respondents are 40 people who are high school Mathematics teachers. The training was delivered by expert trainers who are lecturers at STT Terpadu Waingapu and are active in project management in the Education Division of the Indonesian Sumber Karunia Anak Foundation. Asynchronous training activities through WhatsApp Groups are carried out by sending training modules for personal learning and assignments. The next day, participants participated in the training via Zoom Meeting.

The training ended with the trainees filling out a questionnaire for the training module readiness test. Next, the researcher conducted a focus group discussion to confirm the findings in the field and the questionnaire results and accommodate suggestions for improving the training module. Based on the results of the FGD, the training module was feasible and ready to be applied in training for teachers, and

there were no suggestions for revision. The results of the assessment of the readiness of the training module on the main field testing are presented in Table 3.

Table 3. The Result of Readiness test in Main Field Testing

Aspect	Percentage of Readiness
Self Instructional	92.00%
Self Contained	91.75%
Stand Alone	90.50%
Adaptive	93.25%
User Friendly	91.20%
The Percentage of Readiness in Main Field Testing	**91.63%**

Discussion

The training module developed in this research is an electronic module based on Google Slides. Google Slides is an online-based presentation application that is part of Google Workspace. The training module is intended to provide material content regarding project-based learning, Google Workspace, and implementing project-based learning with Google Workspace. In addition, this training module contains learning activities that are integrated with other Google Workspace applications through the hyperlink feature. This activity, integrated with various Google Workspace applications, allows users to learn more deeply; for example, when users do exercises through Google Forms, as soon as they finish working, they will immediately get a discussion of the material (Geer, 2021; Gulomjonovich, 2021). This training module can be accessed anytime and anywhere using a laptop, PC, or mobile phone, both in independent learning and in groups in teacher training classes. Similar findings by previous study that state that Google Slides-based modules can be used to deliver content and various learning activities effectively and interestingly and enable independent learning anywhere and anytime (Rojanarata et al., 2021).

The results of the validity test of the training module by experts illustrate that the training module for project-based learning with Google Workspace in *Merdeka* Curriculum management is feasible in terms of materials and media and is feasible for being called a module. The curriculum is one of the most important factors when it comes to the effectiveness of an educational process in a school setting (Akib et al., 2020; Thompson, 2011). Training teachers to implement updated versions of the curriculum is a critical issue. This is because, with changes and updates of documents such as the curriculum, teachers must comprehensively understand the material to ensure the successful implementation of quality learning processes. Training is a short-term learning strategy that uses organized, methodical procedures to study particular abilities and knowledge (Marjaya & Pasaribu, 2019; Noroozi et al., 2019). Training is absolutely essential when there is a discrepancy between the needs and skills of human resources in meeting organizational needs. The company must thus take steps to close the gap, one of which is by providing training to develop the capability of its human resources in line with demands and expectations.

Preliminary field testing and main field testing illustrate that the training module is feasible to be applied in teacher training. Through FGD, respondents stated that the training module helps understand the management of the *Merdeka* Curriculum, contains coherent and comprehensive material, and the module design is exciting and increases reading interest (Aziz, 2011; Rahayu et al., 2022). Moreover, practice questions can help users test their understanding of project-based learning and Google Workspace and provide lighter questions and reflections. In line with previous study that state the training module is intended to help increase the competence of participants (Herminayu & Sulasmono, 2020). In this study, the competence of participants was focused on pedagogic competence in learning management. Learning management requires teacher participation in curriculum design. In addition, the participation of educators in the process of curriculum development is essential to ensure that the content of the *Merdeka* curriculum is in line with the requirements of the students being taught in the classroom. The *Merdeka* Curriculum is a curriculum that gives both instructors and students the flexibility to engage in learning activities both within and outside of the classroom(Rahayu et al., 2022; Rahmadayanti & Hartoyo, 2022). The teacher may also implement differentiated learning models that are judged appropriate for each content and in line with the abilities of students. One example of this would be the implementation of project-based learning. In project-based learning, teachers organize lessons around a specific project to instruct students in a particular subject (Alotaibi, 2020; Nugrohadi, 2022).

The teacher assigns a task, and students are tasked with exploring it, evaluating it, and ultimately solving it by brainstorming and identifying potential solutions on their own. This learning exercise teaches students how to work independently by pushing them to do an excellent job of completing it, which teaches them how to work alone (Arisanty et al., 2020; Susanty, 2020). The findings of this research indicate, among other things, that the Google Workspace-based Project-Based Learning Project that is part of the Merdeka

Curriculum Management possible function fairly effectively and as the researchers had anticipated it would. It is anticipated that implementing a learning strategy based on project-based learning will make students more enthusiastic, given that the findings of this study are consistent with previous research (Fitria et al., 2020). In particular, pupils develop greater autonomy in their educational pursuits and increased activity and originality. The findings of this study are also in line with previous research which found that students felt more active in working on the project they were working on and practice students' creativity in completing the project given because students were released to do it (Chaijum & Hiranyachattada, 2020). This research found that students felt more active in working on the project they were working on. The students improve their self-assurance and enthusiasm when following the teacher's instructions and completing their assignments.

A virtual class is an online course that enables participants to talk with one another, see presentations or videos, engage in group work, and connect with other students while using the teacher-prepared course materials. This platform exceptionally well supports this online learning method. Because Google Workspace provides its services for free, this function is frequently included in Learning Management Systems (LMS) at educational institutions (Berry, 2019; Díez et al., 2020). In addition, this information is bolstered by what is presented by the respondent concerning the utilization of Google Workspace. The respondent explains how to use the platform's features, such as Google Classroom Collaborative, Google Drive, G-mail, Google Sheets, Google Forms, Google Slides, Google Photos, and so on. According to previous study Google Workspace is practical, accessible, rapid, and effective for instructors to create evaluation questions (Iqbal et al., 2018).

The implication of this study students feel the benefits of project-based learning, namely increasing understanding of the concepts of the material taught by the teacher. In terms of mastery of technology, teachers and students of Karangturi High School Semarang have been equipped to operate Google Workspace since the online learning period. The limitation of this study lie on research scope that is very limited. Therefore for future research it is hope be able to deeper and broaden the research scope related to implementation of module for project-based learning in the Merdeka Curriculum management.

4. CONCLUSION

The author has researched the topic of the development of a training module for project-based learning with Google Workspace in the Merdeka Curriculum management. This training module can be used for training for high school teachers, as shown by the results of the validity and readiness tests, which show the feasibility of the training module. This training module can be used to provide teachers with pedagogical competencies, including project-based learning materials, Google Workspace, and their implementation in the management of the *Merdeka* Curriculum. The resulting module has the advantage that it can be accessed anytime and anywhere and can be applied in training for teachers independently or in groups.

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