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# Developing Interactive Learning Worksheets (LKPD) with Google Slides for Elementary School Teachers

**Endah Rahayu*, Mawardi, Yari Dwikurnaningsih**
Master of Educational Administration, Faculty of Teacher Training and Education,
Universitas Kristen Satya Wacana, Indonesia.
*Corresponding Author. Email: endah.rahayu1028@gmail.com

**Abstract:** This study aims to develop a training module that equips elementary school teachers with the skills to create interactive Learning Worksheets (LKPDs) using Google Slides, aligning with the demands of 21st-century education. A Research and Development method, following the Borg and Gall model, was employed. The research process involved seven stages: 1) a comprehensive needs assessment and literature review, 2) detailed research planning, 3) development of an initial module draft, 4) small-scale field testing to gather feedback, 5) revision of the module based on initial findings, 6) large-scale field testing to evaluate the module's effectiveness, and 7) final revisions based on the overall results. This study focused on 18 elementary school teachers at SD Kristen 04 Eben Haezer Salatiga. Data was collected through interviews and questionnaires. Qualitative and quantitative analyses were employed to examine the data. The findings revealed that the Google Slides-based LKPD training module was successfully implemented and significantly enhanced teachers' pedagogical competencies in designing interactive learning materials using this digital tool. The validity of the training module was confirmed by expert evaluations. The module received a very high validity rating of 88% from instructional design experts and a high rating of 62% from content experts. Furthermore, the module was highly effective in improving teachers' skills, as evidenced by the positive feedback and high scores obtained from the teacher participants. The post-training survey revealed an average satisfaction rating of 93%, indicating a very high level of acceptance among the teachers.

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## Introduction

One of the most important factors in determining the quality of human resources and a nation's progress is good education. Good education determines the future of generations, both for individuals and society. Therefore, a suitable curriculum is needed to support the success of quality education (Kusuma et al., 2023). Without a curriculum in place, the implementation of education becomes impossible (Insani, 2019). The Merdeka Curriculum is the current pedagogical framework in place. This curriculum holds promise for educational recovery by emphasizing the significance of meaningful learning experiences and acknowledging individual learner differences. It also affords students opportunities to engage in creative, relaxed, and enjoyable learning activities. Consequently, the significance of educators and teachers cannot be overstated. This corroborates the view that (Ainia, 2020) Teachers play a crucial role in offering students enriching and engaging activities.

Educators have the autonomy to select teaching resources that align with the specific needs and interests of their students. This includes the capacity to develop individualized

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learning modules. The Merdeka Curriculum's modular approach empowers teachers to adapt materials to enhance the significance of the learning experience. As outlined in the learning and assessment guidelines, the primary objective of learning modules is to create effective instructional tools (Tedjokoesoemono et al., 2020).

The introduction of learning modules marks a significant shift in pedagogical practices. Teachers have undergone extensive training to adapt to this innovative approach. A key component of learning modules is the LKPD, which offers a structured framework for assessment. By providing opportunities for hands-on activities, LKPD enhances student learning and understanding (Khikmiyah, 2021). LKPD facilitates a structured learning process by incorporating practice exercises and supplementary materials designed to enhance practical learning (Rahmawati & Wulandari, 2020). LKPDs serve as versatile tools that can facilitate both traditional and digital learning environments, fostering independent knowledge acquisition among students (Prianoto et al., 2017).

LKPD can be designed to suit the needs and circumstances of the learning activity at that time and is in line with the Merdeka Curriculum which focuses on student-centered learning (Pertiwi et al., 2022), LKPD offers numerous benefits for students, including fostering active engagement, facilitating the application and integration of learned concepts, developing procedural skills, enhancing the learning process, and expanding knowledge (Umbaryati, 2016). Interviews revealed that while teachers have participated in numerous professional development programs on instructional materials development, these often primarily focused on learning modules, with limited attention given to LKPD. A survey conducted among teachers at SD Kristen 04 Eben Haezer Salatiga corroborated these findings, indicating that time constraints hinder teachers from acquiring a comprehensive understanding of LKPD development. Despite the potential for creating engaging LKPD, the availability of resources and guidance on LKPD design is often insufficient, leading teachers to seek pragmatic solutions.

Based on these findings, it is necessary to develop a module for creating LKPD using Google Slides to support 21st-century skills such as critical thinking, creativity, collaboration, communication, problem-solving, and digital literacy (Renggani & Priyanto, 2023). This is also in line with the message of the Ministry of Education and Culture circular number 14 of 2019, which emphasizes the need for an educational paradigm that aligns with the era of the 4.0 industrial revolution(Akmal & Santaria, 2020). The paradigm of 21st-century education is characterized by its emphasis on effectiveness, efficiency, student-centered learning, fostering student engagement, and addressing the unique learning needs and readiness of individual learners to ensure that learning outcomes are attained (Wijoyo,2018).

The Merdeka Curriculum necessitates a paradigm shift in education, demanding that teachers equip students with the technological competencies required to thrive in the era of the Fourth Industrial Revolution. However, research indicates a significant gap in teachers' ICT proficiency, particularly evident in the disparities between educational quality in Java and other regions (Muttaqin,2019). There exists a significant disparity in the levels of technological, communication, and information literacy among the Indonesian population (Widodo dan Riandi 2018), Additionally, limited internet connectivity resulting from inadequate network infrastructure poses a significant barrier to teachers' professional development in ICT, consequently affecting their ability to deliver high-quality instruction.

A synergy among all stakeholders is needed to equip teachers with the capabilities to meet the challenges of the 4.0 Industrial Revolution (Aini et al., 2018). Teachers can find greater opportunities to innovate and be creative, especially in designing more meaningful

  

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learning experiences, both online and offline, such as developing student worksheets. Given that many students are now proficient in using smartphones, laptops, and computers, to access information quickly and easily, teachers should guide students to use these devices productively in their learning. This includes helping students develop critical thinking skills and avoid becoming overly reliant on their gadgets. Google Slides, an online presentation tool, is a prime example of a platform that can be used to foster active and meaningful learning. By leveraging this tool, teachers can guide students to become more engaged in their learning and develop essential digital skills.

Google Slides offers a versatile platform for creating, storing, and sharing documents with other users, making it ideal for developing interactive teaching materials. To facilitate the development of interactive teaching materials, the researchers have created a module to guide participants in effectively utilizing Google Slides. This module is designed to enhance participants' understanding of how to design and develop instructional components (Anadia et al., 2023). The objective of this research is to enhance teachers' competencies in developing Google Slides-based LKPD to create innovative and student-centered learning materials. By providing teachers with the necessary skills and knowledge, this study aims to empower them to design engaging and effective learning experiences that cater to the diverse needs of their students.

## Research Method

This research employed a Research and Development (R&D) method, specifically designed to create a novel product (Sugiyono, 2017). The product developed in this study was a training module for creating Google Slides-based Learning Activity Sheets (LKPD). The research subjects include 1 principal and 17 teachers from SD Kristen 04 Eben Haezer Salatiga. This research employed the (Borg & Gall model 2003) which consists of 10 steps: 1) research and information collection, 2) research planning, 3) development of the initial product draft, 4) preliminary field testing, 5) revision based on preliminary field testing, 6) main field testing of the product, 7) product revision, 8) large-scale field testing, 9) final product revision, and 10) dissemination and implementation. However, the researcher only conducted the research up to the seventh step, which is the product revision. The steps of the Borg and Gall model are as follows:

1) Research and information collection: the purpose of the initial research and information collection phase was to conduct a preliminary study and gather data through observation and interviews to identify the existing teacher training programs related to instructional material development.
2) Planning: in this phase, the researcher conducted research planning, encompassing the identification of required resources, the definition of research objectives, the outlining of learning and testing processes, research design, budgeting and scheduling, and data analysis.
3) Develop a preliminary form of product: Educational software development involves designing learning materials, sequencing learning activities, and creating user interfaces for effective learning.
4) Preliminary field testing: In this phase, a small-scale field test was carried out to evaluate the product design. Data was gathered through rubrics, questionnaires, and observations from experts and potential users.

  

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5) Main product revision: In this step, the initial product is revised and improved based on the results of the initial field test. The goal is to produce a high-quality product that is ready for larger-scale testing.
6) Main field testing: The study was extended to a larger sample, comprising the faculty of SD Kristen 04 Eben Haezer Salatiga.
7) Operational product revision: In this stage, the researcher conducted a revision and refinement of the product based on the feedback from the larger-scale field test. The aim is to produce a product that is ready for validation.

The data collection techniques employed in this study were interviews and questionnaires. The data analysis was conducted using an interactive analysis approach by Miles and Huberman, which involved data reduction, data display, and conclusion drawing (Sugiyono, 2018). The results of the observations were analyzed by calculating the average and percentage which were clarified by calculating the interval class.

**Results and Discussion**

The stages of this research outcome are explained as follows:

1) Research and information colletion

Researchers conducted observations and interviews with teachers to obtain a comprehensive understanding of the school's context and conditions related to the intended research and development.

2) Planning

There are four stages in the planning and design of this Google Slides-based LKPD or initial draft, namely: 1) syllabus design consisting of objectives, module usage, training targets, 2) structural framework consisting of module cover, competency map, and learning activities, 3) design results in the form of training material content, and 4) expert validation. The results of the expert validation were analyzed using descriptive percentage technique and the validation level, which was then presented using a formula.

**Tabel 1. Descriptive Percentage Technique**

| Percentage (%) | Validity Level | Description |
|---|---|---|
| 81% - 100% | Very High | No need to revise |
| 61% - 80% | High | No need to revise |
| 41% - 60% | Rather Low | Revise |
| 21% - 40% | Low | Revise |
| 1% - 20% | Very Low | Revise |

3) Develop preliminary form of product:

a) The syllabus outlines a comprehensive training program designed for elementary school teachers. It includes six specific learning objectives, instructions for using the module, and a clear delineation of the target audience. The training is divided into two main chapters: Chapter 1 introduces the concept of LKPD, its benefits, format, application in Google Slides, and the process of creating LKPD. Chapter 2 focuses on the design of LKPD and culminates in a comprehension assessment.

b) The module's structural framework consists of:

  

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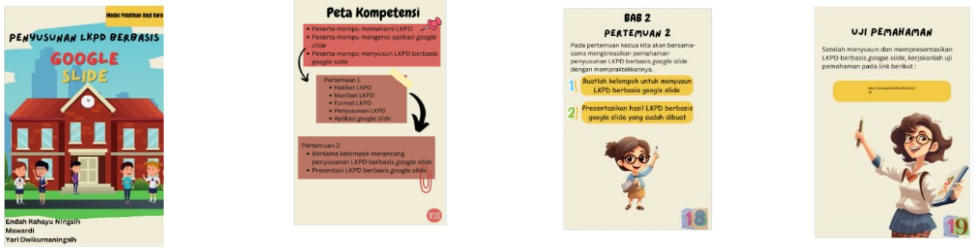


Training Module Cover | Competency Map | Learning Activites | Comprehension Test

**Figure 1. Module Structure Framework**

c) Expert validation

The initial product was a training module on developing Google Slides-based LKPDs. The module was validated by two experts in training module development and subject matter to assess its suitability. The validation results for the module and its content are presented in Tables 3 and 4.

**Tables 3. Expert Validation Results Of The Training Module**

| No | Components | Score |
|---|---|---|
| 1 | Correspondence of competency achievement indicators with the content outline of the module | 5 |
| 2 | Clearness and specificity of objectives and indicators aligned with competency development | 4 |
| 3 | Collaborative achievement of training competency indicators | 5 |
| 4 | The proportion of training activities in the training module allows for active participant involvement | 5 |
| 5 | Sequence of presentation in each learning activity unit | 4 |
| 6 | Consistency of systematic presentation in each learning activity unit. | 5 |
| 7 | Accuracy of language use. | 5 |
| 8 | Consistency in the use of terms, abbreviations, symbols, and icons | 5 |
| 9 | Accuracy of sentence structure in every learning activity. | 5 |
| 10 | The effectiveness of using sentences in all learning activities | 5 |
| **Total score** | | 53 |
| **Percentage (%)** | | 88% |

Based on expert validation, the training module for developing Google Slides-based LKPDs achieved a validation rate of 88%, indicating a very high level of validity. Therefore, the module is deemed suitable and ready for implementation. The experts suggested that a more comprehensive writing structure and detailed explanations of each feature would enhance the module.

**Tabel 4. Expert review of content**

| No | Component | Score |
|---|---|---|
| 1 | The consistency between titles and content within each training module. | 4 |
| 2 | The consistency between learning outcomes and the material covered in each training session. | 4 |
| 3 | The training competency indicators are aligned with the developed core competencies. | 4 |
| 4 | Clearness of content explanation in every learning unit. | 4 |
| 5 | Accuracy of the content presented in every learning unit | 4 |
| 6 | Comprehensiveness of the content covered in each learning unit. | 4 |
| 7 | Clearness of the examples given in every learning unit. | 3 |

  

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| | | |
|---|---|---|
| 8 | Clearness of the simple learning instructions in every learning unit. | 4 |
| 9 | Diversity of examples given in every learning unit. | 3 |
| 10 | Alignment of examples with the content in every learning unit. | 3 |
| **Total score** | | 37 |
| **Precentage (%)** | | 62% |

Based on expert validation, the training module for developing Google Slides-based LKPDs achieved a 62% validation rate, indicating a high level of content validity. Therefore, the module is deemed suitable for implementation.

4) Preliminary flied testing

A preliminary field test was conducted after the module was revised based on expert feedback. The l preliminary field test aims to assess the quality and suitability of the training module before the main field test or implementation. Five teachers participated in the initial field test by downloading the materials, reading the module content, and trying out the activities. The field test was conducted online via Google Meet on May 26, 2024. Participants completed a questionnaire to provide feedback. The participants consisted of three homeroom teachers and two subject teachers. The results of the preliminary field test questionnaire are presented in Table 5.

**Table 5 . Result of trainee observations**

| No. | Assessment criteria | Score |
|---|---|---|
| 1 | Trainee reaction | 93% |
| 2 | Learning process | 93% |
| **Average** | | 93% |

The average rating for the training module on developing Google Slides-based LKPDs, based on participants' observations, was 93%, indicating a very high level of satisfaction**.**

5) Main product revision

The questionnaire results from the observation of training participants regarding the implementation of Google Slides-based LKPD development training showed an average score of 93%, indicating a very high level of satisfaction.

6) Main flied testing

The main field test or implementation and evaluation phase aimed to determine the effectiveness of the Google Slides-based LKPD development training module as a teaching tool. The two-day training was conducted on May 27-28, 2024, with the participation of 1 principal, 12 homeroom teachers, and 5 subject teachers at SD Kristen 04. The training process included an opening, pre-test, two learning sessions, post-test, questionnaire completion, and closing. The training was conducted offline. The participants' feedback on the module showed a very high satisfaction rate, with an average score of 94%, as presented in Table 6.

**Table 6. Validation results of the main field test conducted by trainees**

| No. | Aspect of assessment | Score |
|---|---|---|
| 1 | Module display | 92% |
| 2 | Training material | 94% |
| 3 | Software engineering quality | 94% |
| 4 | Language usage | 94% |
| **Average** | | 94% |

7) Oprational product revision

The final stage of the research involved the revision of the operational product. The revisions were based on the feedback, suggestions, and criticisms provided by the training participants. The participants suggested that training on the development of learning materials, particularly

  

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LKPDs, was essential to enhance teachers' competencies. They also pointed out several typos and errors in the text. The link to the Google Slides-based LKPD development training module is **https://docs.google.com/presentation/d/1isOFLT2vP3KVoYmE7gnEwC-t2HC-FkpLP0SGP6e6ivw/edit?usp=sharing**

Based on observations and interviews with teachers at SD Kristen 04 Eben Haezer Salatiga, it was found that teachers possess sufficient 4.0 IT skills, which will facilitate the research process. This finding aligns with (Hasbullah 2015) assertion that educators must master and utilize digital technology in teaching to enhance the quality of education in Indonesia. Essential skills include leadership, digital literacy, communication, emotional intelligence, entrepreneurship, global citizenship, problem-solving, and teamwork (Susanti et al., 2019). However, it was observed that teachers were not optimally utilizing applications to support the creation of learning materials. Therefore, the researcher developed a training module. A training module is a series of instructional materials designed to facilitate learning during the training process, along with user guidelines to assist tutors or trainers in delivering the learning content (Sumini, 2018).

The module was designed with the objectives of enabling teachers to understand the nature, benefits, and format of LKPDs, to apply LKPD development, to operate Google Slides, and to demonstrate their understanding at the end of the session. The product design was planned to address all field-based challenges (Ghani, Muhammad Taufiq Abdul Ab et al.,2018). Design is conducted to create a framework or concept for a product based on various information and activities obtained during the analysis phase regarding learner competencies (Ngaba, 2018). The researcher also conducted expert validation to ensure the suitability of the module for distribution. The validation process included expert validation of the training module and expert validation of the content. The validators also provided several criticisms and suggestions, which are detailed in the research findings.

The researcher then developed an initial draft of the revised product design. Based on the criticisms and suggestions provided by the module training and content experts, a syllabus and module structure were developed to serve as a guideline for module development. This guideline provides a roadmap for the implementation of all components within the training, as it outlines the specific objectives to be achieved (Dick and Carey, 1990). The initial field test was conducted after the module had been revised based on the expert validators' feedback and validation feasibility percentage (Arikunto & Suharsimi, 2012). The observation questionnaire completed by training participants regarding the LKPD development training using Google Slides yielded an average score of 93%, indicating a very high level of satisfaction. Revising the module based on the field test results is a prerequisite for the module's implementation.

In the final stage of operational product revision, the researcher received valuable feedback from training participants that was used to revise the training module. The participants pointed out several typos that needed to be corrected and suggested that regular training on instructional materials development should be conducted, as it contributes to improving teachers' competencies (Mulyawan, 2013).

## Conclusion

The findings of this study indicated that Google Slides-based LKPD could be effectively implemented in elementary schools and significantly enhance teachers' pedagogical competencies in developing such LKPD. It was evidenced by the expert validation results,

  

with the training module achieving a very high validity level of 88% and the content module achieving a high validity level of 62%. The field test results also demonstrated a very high level of effectiveness, with teachers scoring an average of 94%. Moreover, the observation questionnaire revealed a very high level of satisfaction among participants, with an average score of 93%.

**Recommendation**

Based on the findings of this research, it is recommended that; (1) The principal should provide optimal facilities to support teachers in developing instructional materials that align with 21st-century learning needs. (2) Teachers should participate in trainings on developing Google Slides-based LKPD and effectively utilize the various features offered by the Google Slides application.

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