

THE DEVELOPMENT OF CANVA-ASSISTED PROJECT BASED LEARNING MODEL TO IMPROVE STUDENTS' CRITICAL THINKING ABILITY AND DIGITAL LITERACY

Arif Maulana¹, Nelly Fitriani², Galih Dani Septiyan Rahayu³

¹IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
arifmaulana220985@gmail.com

²IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
nellyfitriani@ikipsiliwangi.ac.id

³IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
galih040990@ikipsiliwangi.ac.id

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ABSTRACT

Mathematics learning in elementary schools still tends to be dominated by conventional approaches, so it is not optimal in developing students' critical thinking skills and digital literacy, especially in the material of measurement data. This study aims to develop and test the effectiveness of the Project Based Learning (PjBL) model assisted by the Canva application in improving critical thinking skills and digital literacy of fifth-grade elementary school students. The study used a Research and Development (R&D) approach by adapting the simplified stages of Borg and Gall, including needs analysis, planning, product development, expert validation, revision, limited trials, and extensive trials. The subjects of the study were fifth-grade students in an elementary school in Purwakarta Regency. Data were collected through validation questionnaires, pretest-posttest tests, digital literacy observations, and interviews. The results showed that the Canva-assisted PjBL model was in the very feasible category based on expert assessments. The application of this model was proven to be able to significantly improve students' critical thinking skills with a medium N-gain value and improve students' digital literacy in all aspects with a very good category. Thus, the Canva-assisted PjBL model is effectively used as an alternative to innovative and contextual Mathematics learning in elementary schools.

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Corresponding Author:

Arif Maulana,
Master of Basic Education,
Institut Keguruan dan Ilmu Pendidikan Siliwangi,
Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
Email: arifmaulana220985@gmail.com

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INTRODUCTION

Education in the 21st century emphasizes the development of critical thinking ability and digital literacy as essential competencies for students in responding to rapid advancements in science, technology, and information. Critical thinking enables students to analyze information, interpret data, evaluate evidence, and make reasoned decisions, while digital literacy equips them with the ability to access, process, create, and communicate information responsibly through digital technologies. At the elementary school level, these competencies are particularly important as

they form the foundation for students' cognitive development and lifelong learning skills. Therefore, learning activities should not only focus on content mastery but also integrate higher-order thinking skills and digital competence in a meaningful and contextual manner (Ndiung & Menggo, 2024).

In mathematics learning, critical thinking ability and digital literacy are highly relevant, especially in topics that involve data processing and reasoning, such as measurement result data. This topic requires students to collect, organize, present, and interpret data derived from real-world measurements. However, both globally and in Indonesia, elementary mathematics instruction is still largely dominated by procedural and teacher-centered practices that emphasize routine problem solving rather than analytical reasoning and contextual understanding. As a result, students have limited opportunities to engage in critical thinking processes and to utilize digital tools for data representation and interpretation (Wibowo et al., 2024). Initial observations conducted in a fifth-grade class in Purwakarta Regency revealed similar issues, where students showed low achievement in critical thinking indicators, with an average score of 56 out of 100, and limited digital literacy skills, as only 28% of students had experience creating digital visual data representations. These conditions indicate an urgent need for instructional innovation.

Project Based Learning (PjBL) is considered a promising instructional model to address these challenges. PjBL positions students as active learners who construct knowledge through the completion of meaningful projects based on real-world problems. Through project activities, students are encouraged to plan tasks, collect and analyze data, collaborate with peers, and present their findings systematically. Previous studies have shown that PjBL is effective in improving students' critical thinking ability and problem-solving skills, particularly in mathematics learning that emphasizes contextual and experiential learning (Cholid & Peni, 2024).

In addition to learning models, the integration of digital media is essential for supporting the development of students' digital literacy. Canva is a user-friendly digital design application that allows students to create tables, charts, diagrams, and infographics in an engaging visual format. Research has demonstrated that the use of Canva in learning can enhance students' motivation, creativity, and digital literacy skills (Susanti et al., 2024; Setyanti & Aimah, 2024). Digital literacy in this context extends beyond technical skills to include the ability to process information, present data visually, and use digital tools responsibly (Dewi, 2022).

Although numerous studies have examined Project Based Learning and the use of Canva independently, research that systematically integrates Canva-assisted PjBL to improve both critical thinking ability and digital literacy in elementary mathematics learning, particularly on measurement result data, remains limited. Therefore, this study aims to develop a Canva-assisted Project Based Learning model and examine its effectiveness in improving critical thinking ability and digital literacy of fifth-grade elementary school students. The findings of this study are expected to contribute theoretically to the development of innovative learning models and practically to the improvement of elementary mathematics learning, especially in addressing learning challenges in Purwakarta Regency.

METHOD

This study uses the Research and Development method with the aim of developing a Project Based Learning model assisted by the Canva application to improve critical thinking skills and digital literacy of fifth grade elementary school students in Mathematics learning on measurement data material. The R&D method was chosen because it allows researchers to produce valid, practical, and effective learning products through systematic development stages (Sugiyono, 2015; Borg & Gall, 1984) .

This research was conducted at an elementary school in Purwakarta Regency. The subjects consisted of 28 fifth-grade students and one classroom teacher as a learning practitioner. Subjects were selected purposively, considering the suitability of the classroom characteristics to the objectives of the development research.

Data collection techniques in this study include observation, questionnaires, tests, and documentation.

1. The expert validation questionnaire was used to assess the feasibility of the Canva-assisted PjBL model from the content, construction, and language aspects.
2. Practicality questionnaire, given to teachers and students to determine the response and implementation of the learning model.
3. Critical thinking ability test, compiled based on critical thinking indicators which include the ability to interpret data, analyze, and draw conclusions.
4. Digital literacy questionnaire, used to measure students' ability to use digital technology to process and present learning data.
5. Observation sheet, used to observe the implementation of project-based learning during the trial.

The instrument was developed based on theoretical studies and adapted to the characteristics of elementary school students, and validated by experts before use.

The development model used adapts the simplified steps of Borg and Gall to suit the needs of research in elementary schools, without reducing the essence of developing learning products. The research and development procedures in this study include the following six main stages:

1. Needs analysis, including field studies through learning observations, interviews with grade V teachers, and analysis of Mathematics learning documents on measurement data material.
2. Model design, in the form of compiling Project Based Learning syntax assisted by the Canva application, learning tools (RPP/Teaching Modules), and project implementation guides.
3. Initial product development, namely the design of a PjBL model assisted by Canva which is integrated with the activities of collecting, processing, and presenting measurement data.
4. Expert validation, carried out by material experts, learning model experts, and practitioners (teachers) to assess the feasibility of content, model construction, and implementation.
5. Limited trials were conducted on fifth-grade elementary school students to determine the feasibility of the model and the potential for improving students' critical thinking and digital literacy skills.
6. Product revision, based on the results of expert validation and limited trials, until a learning model is obtained that is suitable for use.

These stages are in line with the principles of learning development which emphasize the validity, practicality, and usefulness of the product (Plomp & Nieveen, 2013).

The data in this study were analyzed using quantitative and qualitative descriptive techniques. Expert validation data and teacher and student responses were analyzed by calculating percentage scores for feasibility and practicality, then interpreted based on feasibility criteria.

The improvement of students' critical thinking and digital literacy skills was analyzed by comparing scores before and after the implementation of the model through normalized gain (N-Gain) calculations. This analysis was used to determine the level of effectiveness of the developed learning model (Hake, 1999) .

The Project Based Learning model assisted by the Canva application is declared feasible and effective if:

1. The expert validation results reached the feasible category.
2. Teacher and student responses to the learning model were in the positive category.
3. There was an increase in students' critical thinking skills and digital literacy in the medium to high categories based on the N-Gain value.

RESULTS AND DISCUSSION

Results

This research resulted in a product in the form of a Project Based Learning (PjBL) learning model assisted by the Canva application to improve critical thinking skills and digital literacy of fifth-grade elementary school students in Mathematics learning on the topic "Measurement Result Data". Model development was carried out using a *Research and Development* (R&D) approach that adapted the simplified stages of Borg and Gall, including needs analysis, product planning, initial product development, expert validation, product revision, limited trials, and extensive trials.

During the needs analysis phase, initial observations at an elementary school in Purwakarta Regency revealed that mathematics instruction, particularly on measurement data, was still dominated by conventional, textbook-oriented methods. Students tended to simply work on problems without engaging in actual measurement activities, data processing, or visual presentation of results. Furthermore, the use of digital media in learning was still very limited, resulting in students' critical thinking and digital literacy skills not yet developing optimally. This situation formed the basis for the development of a PjBL model integrated with the Canva application.

The product planning stage resulted in a Canva-assisted PjBL model design tailored to the characteristics of fifth-grade students. This model integrates PjBL steps, namely determining fundamental questions, project planning, scheduling, project implementation, presentation of results, and reflection. Each project stage is directed at collecting measurement data in the students' environment, processing and analyzing data, and presenting project results using the Canva application in the form of tables, diagrams, and simple infographics.

The initial product development phase resulted in a set of learning tools including a Canva-assisted PjBL model, teacher learning modules, student learning materials, project-based worksheets (LKPD), and assessment instruments for critical thinking and digital literacy skills. This initial product was then validated by learning model experts, mathematics material experts, media experts, and practitioners (teachers). The validation results showed that the Canva-assisted PjBL model development maintained the main characteristics of PjBL, but provided reinforcement in aspects of data visualization and students' digital skills.

Product revisions were made based on validator feedback, including simplifying project instructions, adjusting the difficulty level of data processing tasks, improving Canva's visuals for clarity, and adding Canva usage guidelines for teachers and students. These revisions resulted in a product that is more operational and easier to implement in elementary school mathematics learning.

A limited trial phase was conducted with 15 fifth-grade students. It was discovered that not all students were immediately able to operate Canva independently due to their unfamiliarity with digital applications in mathematics learning. Therefore, Canva's features were simplified and group work was strengthened, without eliminating the critical thinking and digital literacy aspects of the project.

A full-class trial was then conducted. The results of the full-class trial showed more significant progress than the limited trial. Students appeared more skilled in using Canva, were able to process and present measurement data effectively, and demonstrated active engagement and high enthusiasm in the learning process. Teachers were also able to support students more effectively after becoming accustomed to this learning model.

A summary of the Canva-assisted PjBL model development process is presented in Table 1 below.

Table 1. Project Based Learning Model Development Process Assisted by Canva

Stages of Development Model	Findings
Needs Analysis	Mathematics learning is still conventional, students are less involved in real measurements, critical thinking skills and digital literacy are low.
Product Planning	Project Based Learning model assisted by the Canva application
Product Development	Development of integrated PjBL syntax for data measurement and presentation projects using Canva, equipped with modules, LKPD, and evaluation instruments.
Expert Validation	The model is considered feasible and does not change the essence of PjBL, but strengthens data visualization and understanding.
Revision	Simplified instructions, adjusted difficulty levels, and improved Canva guides
Limited Trial	Some students still have difficulty using Canva, so the features have been simplified.
Wide-Range Trial	Students are more skilled, active, and enthusiastic; learning is more meaningful
Final Product	Project Based Learning model assisted by the Canva application

Product feasibility data was obtained through expert validation. Feasibility testing is a crucial stage in development research to ensure that the resulting product meets conceptual, pedagogical, and technical feasibility standards before being widely implemented in learning. In this study, a feasibility test was conducted to assess the suitability of the Project Based Learning model assisted by the Canva application to the characteristics of elementary school students, specifically in Mathematics learning on measurement data. The validation process involved learning model experts, material experts, media experts, and education practitioners (teachers), with the aim of obtaining a comprehensive assessment of the clarity of learning syntax, material accuracy, media integration, and product implementation in the classroom. The results of the feasibility assessment from the validators were then analyzed quantitatively using scores and percentages, and qualitatively through suggestions for improvements to perfect the developed product.

Table 2. Feasibility Test Results

Component	Score	Percentage	Category
PjBL Model	70	87.5%	Very Worthy
LKPD	68	85%	Very Worthy
Teaching materials	72	90%	Very Worthy
Canva Media	71	88.75%	Very Worthy

Based on the feasibility test results presented in Table 2, all development components, including the Project Based Learning model, LKPD, teaching materials, and Canva media, are in the very feasible category . This finding indicates that the developed product has met the feasibility criteria in terms of learning design, material substance, and digital media support. The validator confirmed that the integration of the Canva application in the Project Based Learning syntax not only acts as a visual aid, but is also able to strengthen students' critical thinking processes through systematic and visual processing and presentation of measurement data. Thus, the developed model is considered ready to be implemented in Mathematics learning in elementary schools and has great potential to improve the quality of learning oriented towards strengthening 21st-century skills, especially students' critical thinking and digital literacy abilities. The Canva design after revision is as follows.

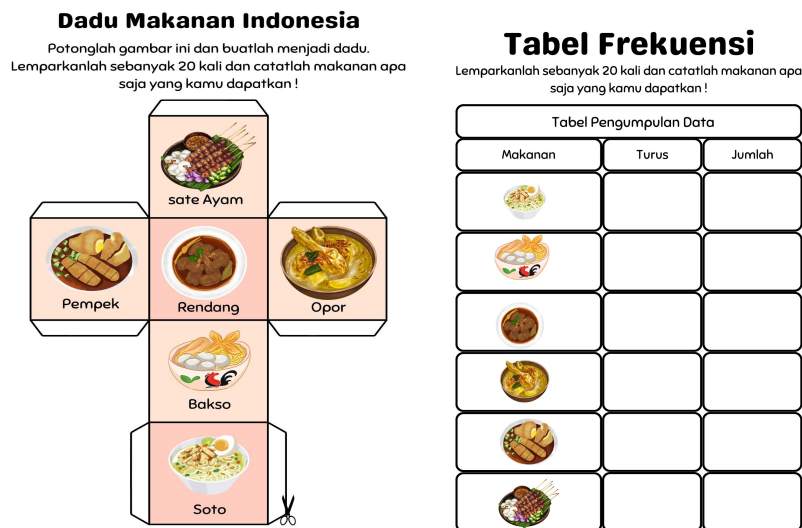


Figure 1. Canva Products

The measurement of students' critical thinking skills in this study was conducted to determine the effectiveness of the implementation of the Project Based Learning model assisted by the Canva application in improving the quality of students' thinking processes in Mathematics learning, especially on the material of measurement data. Critical thinking skills were measured through pretest and posttest instruments compiled based on indicators of critical thinking skills, including the ability to analyze problems, interpret data, evaluate information, and draw logical conclusions. Measurements were conducted on 28 students before and after the implementation of the learning model as a form of evaluation of changes in students' cognitive abilities. The measurement results were then analyzed descriptively to obtain a general overview of the distribution of scores, trends in improvement, and stability of students' critical thinking skills after participating in project-based learning with the support of digital visual media.

Table 3. Descriptive Statistics of Critical Thinking Skills

Statistics	Pretest	Posttest
Number of students	28	28
Minimum score	45	70
Maximum score	68	92
Average	56.21	82.14
Standard deviation	6.12	5.48

Based on the descriptive analysis results in Table 3, there was a significant increase in students' critical thinking skills after the implementation of the Project Based Learning model assisted by the Canva application. The average score increased from 56.21 in the pretest to 82.14 in the posttest, indicating that learning that emphasizes project activities and data visualization can encourage students to think more analytically, critically, and systematically. The increase in minimum and maximum scores also indicates that almost all students experienced development in critical thinking skills, not only in the group of high-ability students, but also in students with lower initial abilities. Furthermore, the decrease in the standard deviation from 6.12 to 5.48 indicates that students' critical thinking skills became more evenly distributed after the intervention, indicating that the implemented learning model was not only effective in improving learning outcomes but also able to reduce the ability gap between students. These findings strengthen the evidence that the integration of Project Based Learning with digital media such as Canva provides a meaningful, contextual learning experience and is able to develop critical thinking skills as one of the key competencies needed by students in the 21st century.

After conducting descriptive analysis of the pretest and posttest scores, the next stage was inferential statistical analysis to determine the significance of the improvement in students' critical thinking skills after implementing the Project Based Learning model assisted by the Canva application. This analysis aims to test whether the increase in scores was not caused by chance factors, but rather a direct impact of the treatment given. Statistical tests used included a normality test as a prerequisite for parametric analysis, a *paired sample t-test* to determine the difference in scores before and after the treatment, and an N-gain calculation to measure the effectiveness of improving students' critical thinking skills quantitatively.

Table 4. Results of Critical Thinking Statistical Test

Test	Mark
Sig. pretest normality	0.721
Sig. posttest normality	0.654
Sig. paired sample t-test	0,000
N-gain	0.60 (Medium)

Based on the statistical test results in Table 4, the significance value of the normality test was 0.721 for the pretest and 0.654 for the posttest, both of which were greater than 0.05. These results indicate that the data on students' critical thinking skills were normally distributed and met the requirements for parametric analysis. Furthermore, the results of the *paired sample t-test* showed a significance value of 0.000 ($p < 0.05$), confirming a significant difference between the pretest and posttest scores. These findings provide statistical evidence that the implementation of the Canva-assisted Project Based Learning model significantly improved students' critical thinking skills. Furthermore, the N-gain value of 0.60, which is in the moderate category, indicates that the developed learning model has quite strong effectiveness in improving critical thinking skills. This increase reflects that student involvement in project activities, analysis of measurement data, and visualization support through Canva can encourage students to carry out higher-order thinking processes in a more structured and

meaningful manner. Thus, the results of this statistical test strengthen the previous descriptive findings and confirm that the Canva-assisted PjBL model is feasible and effective to be used as an alternative Mathematics learning to develop the critical thinking skills of elementary school students.

Students' digital literacy was measured to determine the extent to which the implementation of the Project Based Learning model assisted by the Canva application was able to develop students' abilities in utilizing digital technology effectively, critically, and responsibly in Mathematics learning. Digital literacy in this study is not only understood as the technical ability to use devices, but also includes the ability to access digital applications, process measurement data, present information in visual form, and apply ethics and responsibility in the use of technology. Measurements were carried out through structured observations at the pretest and posttest stages throughout the learning process. The results of the observations were then analyzed descriptively to see changes in students' digital literacy levels after participating in project-based learning integrated with the use of digital media.

Table 5. Results of Digital Literacy Observations

Aspects of Digital Literacy	Pretest (Average)	Posttest (Average)	Difference	Final Category
Operating digital devices	56.8	89.6	+32.8	Very good
Accessing and using the Canva app	52.4	92.1	+39.7	Very good
Managing and processing measurement data	48.9	85.3	+36.4	Very good
Creating visual content (digital tables/diagrams)	47.6	87.9	+40.3	Very good
Digital ethics and responsibility	59.2	90.4	+31.2	Very good
Overall Average	53.98	89.06	+35.08	Very good

Based on the digital literacy observation results in Table 5, a very significant increase was seen in all aspects of students' digital literacy after the implementation of the Canva-assisted Project Based Learning model. The overall average increased from 53.98 in the pretest to 89.06 in the posttest, indicating that most students had achieved the excellent category in digital literacy. The highest increase occurred in the ability to create digital visual content in the form of tables and diagrams, with a difference of 40.3 points. This finding indicates that students' direct involvement in the project of processing and presenting measurement data encourages the mastery of digital skills that are applicable and contextual. Furthermore, the improvement in the aspects of digital ethics and responsibility indicates that project-based learning not only emphasizes the technical aspects of technology use but also builds students' awareness of the wise use of digital media. Overall, these findings confirm that the integration of Project Based Learning with the Canva application in Mathematics learning can comprehensively improve students' digital literacy, while strengthening students' readiness to face the demands of 21st-century learning, which places digital literacy as an essential competency.

Interviews with teachers and students were conducted to obtain a more comprehensive picture of the obstacles that emerged during the implementation of the Project Based Learning model assisted by the Canva application in Mathematics learning material on measurement data. This qualitative data serves as a complement to the quantitative findings obtained through feasibility tests, critical thinking skills tests, and digital literacy observations. Through semi-structured interviews, researchers explored the direct experiences of teachers and students related to the learning process, technical obstacles to the use of digital media, and pedagogical challenges in managing project activities in the classroom. The interview results were then analyzed

thematically to identify dominant patterns of obstacles and adaptive strategies used during the learning implementation.

Table 6. Interview Results on Implementation Constraints

Respondents	Constraint
Student	It takes time to adapt to using Canva, still having difficulty organizing data independently
Teacher	Learning time is limited, device readiness is not yet evenly distributed, initial adjustments are needed in project management.

Based on the interview results in Table 6, the obstacles that emerged during the implementation of the Canva-assisted PjBL model can be categorized into two main aspects: technical and pedagogical. From the student perspective, the time needed to adapt to using the Canva application and the difficulty in organizing data independently indicate that students' digital literacy and learning independence are still developing and require gradual support. Meanwhile, from the teacher perspective, limited learning time, uneven device availability, and the need for adjustments in project management are the main challenges in implementing project-based learning in the classroom. However, these obstacles are not fundamental and can be overcome through adaptive pedagogical strategies, such as heterogeneous student grouping, gradual scaffolding, and simplification of project activities without compromising the essence of learning. These findings indicate that the successful implementation of the Canva-assisted PjBL model is determined not only by the quality of the model and media design, but also by the teacher's readiness to manage learning and flexibility in adapting strategies to classroom conditions. Thus, the interview results provide important input for refining the model's implementation in the field while strengthening the practical validity of the developed learning model.

Discussions

The research findings indicate that the Project Based Learning model, assisted by the Canva application, is considered highly feasible for implementation in Mathematics learning on measurement data in fifth-grade elementary schools. This feasibility is reflected in the validation results of experts on the model, media, LKPD (Worksheet Worksheet), teaching materials, and practitioners, all of which are in the highly feasible category. This finding aligns with research by Sumarni (2016), which states that the PjBL model is considered feasible if the learning syntax is consistent, relevant to student characteristics, and supported by media that facilitates higher-order thinking processes. The integration of Canva as a digital visual medium strengthens the clarity of project steps and data visualization, thereby strengthening the basis for the model's feasibility. Thus, the validation results in this study confirm that the Canva-assisted PjBL model meets the theoretical and practical criteria as a Mathematics learning model in elementary schools.

The feasibility of Canva media in this study indicates that digital visual media plays a significant role in supporting the implementation of project-based learning models. This finding supports previous research that stated that interactive digital media can improve the quality of mathematics learning through concrete and contextual visual presentations (Hidayat et al., 2023). However, several studies also emphasize that digital media is less effective if not accompanied by clear pedagogical guidance (Scherer et al., 2019). In this study, Canva media was not used separately, but rather integrated into the PjBL syntax, thus remaining under the teacher's pedagogical control. Therefore, the findings of this study confirm that the effectiveness of digital media is highly dependent on its integration with the learning model.

The results of the study showed a significant increase in students' critical thinking skills after implementing the Canva-assisted PjBL model, both descriptively and inferentially. This finding supports the theory that project-based learning provides space for students to analyze problems, process data, and draw conclusions independently (Bell, 2015). Research by Suteja & Setiawan (2022) also proved that PjBL is effective in improving elementary school students' critical thinking skills in Mathematics learning. With students' active involvement in the data processing project of measurement results, students not only receive information but also construct their own knowledge. Thus, the increase in critical thinking skills in this study confirms the strength of the PjBL approach that is oriented towards activities and problem-solving.

The integration of Canva into PjBL significantly contributed to improving critical thinking through data visualization. This finding aligns with Mayer (2020), who asserted that visual presentations can strengthen cognitive processes in understanding abstract concepts. Similar research by Kurniawan et al. (2023) found that the use of digital visual media in mathematics helps students interpret data more systematically. However, some studies suggest that excessive visualization can actually confuse students (Sweller et al., 2019). In this study, the Canva visualizations were designed to be simple and focused on the project's objectives, thus avoiding cognitive overload. Thus, these findings confirm that appropriate visualizations support the development of students' critical thinking.

The N-gain value for critical thinking skills, which is in the moderate category, indicates that the Canva-assisted PjBL model is effective in improving critical thinking skills, although it has not yet reached the high category. This finding aligns with research by Putri et al. (2020), which found that PjBL provided gradual improvements in elementary school students' critical thinking skills. Several other studies have suggested that high N-gain outcomes are strongly influenced by implementation duration and project intensity. This study was conducted over a limited period, so the improvements achieved were still moderate. Therefore, these findings confirm that the Canva-assisted PjBL model is effective but still has potential for improvement through more sustained implementation.

Observation results show an overall increase in students' digital literacy after implementing the Canva-assisted PjBL model. This finding supports the digital literacy framework proposed by UNESCO (2018), which states that digital literacy encompasses technical, cognitive, and ethical skills. Another study by Pratama & Hartini (2021) also shows that project-based learning assisted by digital technology is effective in improving the digital literacy of elementary school students. However, several studies have revealed the risks of using technology without guidance (Siddiq et al., 2016). In the context of this study, the increase in digital literacy occurred due to teacher guidance and a clear project structure. Thus, the results of the study confirm that Canva-assisted PjBL is effective in building comprehensive digital literacy.

The aspect of digital literacy with the highest improvement was the ability to create digital visual content in the form of tables and diagrams. This finding aligns with research by Falloon (2020), which states that digital content production is an important indicator of 21st-century digital literacy. Research by Sari et al. (2022) also found that Canva was effectively used by elementary school students to develop mathematical data visualizations. Unlike conventional learning, project activities encouraged students to present data independently and creatively. Therefore, these results confirm that Canva-assisted PjBL not only improves conceptual understanding but also digital content production skills.

Interview results indicate that the obstacles to implementing the Canva-assisted PjBL model are both technical and pedagogical. This finding aligns with research by Ertmer et al. (2015) which states that the main challenges to technology-based learning are device readiness and

classroom management. Several studies also indicate that students need time to adapt to using digital technology (Bond et al., 2020). However, the obstacles identified in this study can be overcome through student grouping and gradual mentoring. Therefore, this finding confirms that implementation obstacles are not the primary obstacle, but rather part of the adaptation process of innovative learning.

The success of implementing the Canva-assisted PjBL model is greatly influenced by the teacher's role in managing the project and facilitating learning. This finding supports research by Darling-Hammond et al. (2020) which emphasizes that teachers act as facilitators in 21st-century learning. Other research shows that without proper management, PjBL can become disorganized. In this study, teachers played an active role in providing scaffolding and project direction. Thus, the results of this study confirm that teachers' pedagogical competence is a key factor in the success of Canva-assisted PjBL.

Overall, the research results indicate that the Project Based Learning model assisted by the Canva application is feasible, effective, and relevant for improving critical thinking skills and digital literacy in elementary school students. This finding is consistent with various previous studies that emphasize the superiority of Project Based Learning (PjBL) in developing 21st-century skills. Although there are technical and pedagogical obstacles, these obstacles can be overcome through adaptive learning strategies. Therefore, this discussion confirms that the integration of Project Based Learning (PjBL) and Canva digital media is a potential learning approach for wider application in mathematics learning in elementary schools.

CONCLUSION

This study concludes that the development of the Project Based Learning (PjBL) learning model assisted by the Canva application through the Borg and Gall Research and Development (R&D) approach successfully produced a valid, practical, and effective learning product in improving critical thinking skills and digital literacy of fifth-grade elementary school students on the material of measurement data. The implementation of the model showed a significant increase in students' critical thinking skills and an increase in digital literacy in all observed aspects with a very good category. Although there were technical and pedagogical obstacles in the initial stages of implementation, these obstacles could be overcome through simplification of project activities, gradual mentoring, and strengthening group work. Thus, the Canva-assisted PjBL model can be used as an innovative alternative in elementary school mathematics learning that is able to integrate higher-order thinking activities and the meaningful use of digital technology.

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