Copyright © 2025 The Author(s)
Didaktika: Jurnal Kependidikan Vol. 14 No. 3 Agustus 2025

Improving Learning Interest and Outcomes through Project-Based Learning with Digital Comics in Senior High School

Winda Rammayani[1], Erianjoni[2]
[1,2]Universitas Negeri Padang,Indonesia

[1]winda.wd127@gmail.com

Abstract

In the learning process, interest plays a very important role because it reflects a strong desire and motivation to engage in an activity. Interest influences a person's willingness to learn and actively participate in educational activities. This study aims to examine the application of the Project-Based Learning (PBL) model combined with digital comic media in class X Phase E at SMA Negeri 2 Rangsang, focusing on its impact on students' interest and learning outcomes. To increase students' enthusiasm for learning sociology, this classroom action research applies PBL by involving students in the creation of digital comics. The research design used is Participatory Classroom Action Research, where the researcher is actively involved throughout the process, from planning to data collection, analysis, and reporting. This study uses comprehension tests, observation sheets, and interviews to collect data, which is then analyzed descriptively to measure the effectiveness of learning. The results of the study indicate that students' initial interest in learning was below the expected standard. However, the implementation of PBL using digital comic media successfully increased both interest and learning outcomes. In the first cycle, the average learning outcome increased by 50%, and in the second cycle, it reached 80%. Additionally, students demonstrated greater engagement and enthusiasm, indicating that the learning process became more enjoyable.
Keywords: Project Based Learning Model; Digital Comics

Introduction

Learning interest plays a highly important role in the educational process, as it is one of the main driving forces that determines student engagement in learning activities. Interest itself can be interpreted as a sense of liking, attraction, or an inner drive that arises naturally without coercion toward a particular object or activity (Suprapto & Wahyuni, 2020). In the educational context, learning interest is often associated with students' mental readiness to follow the learning process enthusiastically, making them feel comfortable, satisfied, and motivated to achieve learning objectives. Explained that interest emerges as a positive tendency to appreciate or feel attracted to an object, which then develops into intrinsic motivation (Hidi & Renninger, 2019). Learning interest is a tendency resulting from the integration of motivation in students' cognitive activities during learning, thus influencing their learning outcomes. Learning interest is not merely about a sense of liking, but also includes patterns of active engagement, curiosity, enthusiasm, and student participation in the learning process (Ricardo & Meilani, 2021). Emphasized that the signs of students being interested in a subject include consistent attention, a sense of pleasure, willingness to participate, high curiosity, and satisfaction after learning (Hapsari & Setiawan, 2021). Indicators such as students' preference statements toward a subject,

active involvement in the learning process, as well as their consistent attention and engagement. Thus, when students consistently show interest, comfort, full attention, and curiosity toward a subject, it can be said that they possess good learning interest (Andiani et al., 2020).

Unfortunately, conditions in the field still show that many students have a low level of learning interest, including in Sociology subjects at SMA Negeri 2 Rangsang. Based on preliminary observations, several behaviors indicated a low learning interest among students, for example disturbing their friends during lessons, frequently asking permission to go to the toilet repeatedly, and skipping school. The preliminary data showed that only about 35–50% of students in class X phase E consistently paid attention to the lesson, enjoyed learning sociology, were active in asking or answering questions, and felt satisfied with the material delivered. This was reflected in the pre-action table, which showed that class X.1's interest was still lower than class X.2's across almost all indicators, from consistent attention, attraction, active involvement, curiosity, to learning satisfaction. This low learning interest directly impacts students' academic achievement. The end-of-semester summative assessment results showed that the average score of class X.1 was 49.3, while class X.2 was 51.9, with an overall average of 50.6. This value is still far below the Minimum Completeness Criteria (KKTP) set at 75. These conditions indicate a serious problem in the learning process, which is not only related to the low conceptual understanding of the material but also to the lack of motivation and interest of students to actively engage in learning activities.

On the other hand, the development of the industrial revolution 4.0 era poses both challenges and opportunities for education. Students currently in senior high school mostly belong to Generation Z, a generation born between 1997 and 2012 who are known as "digital natives" because they have grown up with rapid technological development. Gen Z has far greater exposure to the internet and technology compared to previous generations (EuScience, 2020). They are accustomed to interacting with social media, digital applications, and various forms of dynamic and interactive visual content. These Gen Z characteristics demand innovation in the learning process. Conventional, one-way, and monotonous learning approaches tend to no longer be effective in attracting their enthusiasm (Alfieri et al., 2020). Teachers must be able to design learning that not only emphasizes knowledge transfer but also facilitates students to create, think critically, solve problems, and collaborate. 21st-century skills highlighted include higher-order thinking skills, technology literacy, creativity, as well as communication and collaboration skills. However, unfortunately, a study by the Pustekkom of the Ministry of Education and Culture (Arifin & Muslim, 2021a). showed that about 40% of teachers in non-ICT fields still have low technology literacy, which limits innovation in learning media.

One solution considered appropriate is the application of the Project Based Learning (PjBL) model supported by technology-based media, for example digital comics (Arnida, 2023). PjBL is a student-centered learning model with a problem-solving approach to real-world projects derived from issues or phenomena around them (Citra et al., 2024). This learning allows students to research, explore, and find solutions to a problem, with teachers acting as facilitators. This model aligns with the needs of Gen Z, who enjoy exploring, creating, and learning independently or collaboratively. Integrating digital comics into PjBL can be an (Aura et al., 2024).

Digital comics not only present captivating and easy-to-understand illustrations but can also carry narratives close to students' daily experiences. Digital comics are considered capable of fostering interest because they display interactive visual elements, and can even include animation and sound effects. Digital comics as a learning medium makes it easier for teachers to deliver concepts or learning materials through engaging visuals, thus reducing student boredom (Novita & Surjono, 2021). Other findings from Alizaro Tafonao also support that

Copyright © 2025 The Author(s)

appropriate learning media can improve motivation, reduce boredom, and build positive relationships between teachers and students. Additionally, research by Ratna Hayu showed that using applications based on digital comics like Canva in learning successfully enhanced creativity and understanding among elementary school students (Oktovina, 2024). Thus, combining Project Based Learning and digital comics has the potential to address the problem of low interest and learning outcomes at SMA Negeri 2 Rangsang, especially in sociology subjects. Moreover, this digital comic–based approach is also expected to help students develop digital literacy skills. Students act as active subjects who plan ideas, design projects, express thoughts, and produce digital comics according to the learning theme. This process educates students to think critically, evaluate information, and present it back in the form of creative visual narratives. Here, the teacher acts as a mentor and facilitator rather than the sole source of knowledge, thereby training students in autonomous learning and group collaboration.

In the context of sociology learning, this approach is highly relevant because materials such as social deviance require students to understand values, norms, and social realities within society. By producing digital comics on the theme of social deviance, students not only study the concepts theoretically but can also relate them to real experiences in their surroundings, making learning more meaningful. Based on this description, this classroom action research focuses on applying the Project Based Learning model supported by digital comic media to improve both interest and learning outcomes of class X phase E students at SMA Negeri 2 Rangsang. This study brings novelty through the use of digital comics as a creative learning medium suitable for Gen Z, while also emphasizing the importance of technology literacy in the digital era. Apart from aiming to improve academic achievement, this study also seeks to foster students' motivation and enthusiasm so that they are more active, critical, and creative in the learning process. Thus, it is expected that students can achieve a deeper understanding of sociology materials while also developing 21st-century skills relevant to current challenges.

Method

This study is a participatory Classroom Action Research (CAR) aimed at increasing students' learning interest in sociology subjects through the implementation of a Project-Based Learning model assisted by digital comics as learning media. Participatory CAR was chosen because the researcher was actively involved from the planning, implementation, observation, to reflection stages collaboratively with the classroom teacher (Rahmatika & S, 2021). The research was conducted at SMA Negeri 2 Rangsang in the even semester of the 2024/2025 academic year, with research subjects being students of class X-1 Phase E, selected based on the results of the end-of-semester assessment showing relatively low learning interest.

The research design uses the cyclical model according to (Arikunto, 2020). consisting of planning, action, observation, and reflection stages. The study is planned to take place over two cycles, with each cycle consisting of two meetings. This study applied the classroom action research (CAR) methodology, which was implemented in several learning cycles. The number of cycles was not determined at the outset, as the nature of CAR itself emphasizes a process of continuous improvement until learning outcomes and student interest meet the expected criteria. Each cycle consisted of several stages: planning, action, observation, and reflection. During the planning phase, the researcher prepared learning materials in the form of modules, multimedia, and observation sheets to monitor student interest in learning using digital comics integrated into a project-based learning model. The success criteria for this research are determined by two main indicators: at least 80% of students achieve the minimum competency criteria (MCC) of 75, and at least 80% of students demonstrate high interest in learning, as

evidenced by their active participation, full attention, and enthusiasm during the learning process. Therefore, the cycles will continue until these objectives are fully achieved.

Then analyzed and used as material for reflection with the teacher to improve the learning process in the next cycle. The second cycle focused on correcting shortcomings from the first cycle so that the learning process could be more optimal. The research instruments included observation sheets and interview guidelines. The observation sheets were used to record student behavior during learning, while interviews were conducted to explore students' experiences, difficulties, and perceptions regarding the use of digital comic media in Project-Based Learning.

The data analysis technique employed a percentage formula as follows: P=F/N X 100% where : P= is the percentage, F= is the response frequency, and N is the total number of students, as described by (Ngarifah, 2023). The percentage of observation results was then interpreted using criteria by (Lestari & Yudhanegara, 2024), with categories of very high (80–100%), high (60–79%), moderate (40–59%), low (20–39%), and very low (0–19%). The success of the action was measured based on achieving a student learning interest category of high (above 60%). Through this reflective cyclical approach, the study is expected not only to improve student learning outcomes but also to strengthen their interest and active engagement in sociology learning based on projects, supported by relevant digital media in line with the characteristics of Generation Z (Arifin & Muslim, 2021).

Results

Pre-Action Research Results

The results of pre-action research conducted in class X (Ten) 1 Phase E SMA Negeri 2 Rangsang show that the learning process in Sociology subjects is still not optimal in increasing students' interest and learning outcomes. Initial observations were made on January 14, 2025 and were attended by all 20 students. Learning is still dominated by the lecture method, with the teacher as the center of teaching and learning activities. Learners sat individually and were not grouped. The material presented focused on the meaning and characteristics of social deviance, using power point media. The teacher also provides contextual examples and asks learners to take notes on the explanation presented. Although the teacher has taken the initiative to provide reading books from the library as supporting materials, the reading interest and involvement of students is still relatively low. During the learning process, many learners were found not paying attention, leaving the class, chatting, and daydreaming. The lack of active interaction between teachers and learners, as well as between learners, is the main obstacle that hinders the effectiveness of learning.

Based on observation data on learning interest, it is known that out of 20 students, only 1 participant is classified as having high learning interest. A total of 8 participants had moderate interest, 7 participants were in the low category, and 4 participants showed very low learning interest. This condition illustrates the lack of enthusiasm of students in participating in active and meaningful learning. Furthermore, the results of the pretest conducted on social deviation material showed that only 5 out of 20 students obtained a score of $\geq$75, in accordance with the Criteria for Completion of Learning Objectives (KKTP) set by the school. The rest, as many as 15 learners, have not yet reached completeness. This indicates a low mastery of the basic concepts of the material taught, as well as an indicator of the need to improve the learning methods used.

The students' low interest in learning and pretest results indicate that the lecture method is not effective enough to stimulate students' active involvement and understanding of the

Copyright © 2025 The Author(s)

material. The lack of learning variations and the lack of space for participation make students passive in the learning process.

Therefore, it is necessary to take corrective action through the application of a more innovative and participatory learning model. One of the efforts designed is the use of the Project Based Learning (PjBL) model supported by Digital Comics media. PjBL encourages students to learn collaboratively, actively, and responsibly in completing projects that are relevant to everyday life. Digital comics were chosen as media because they are able to present information in an interesting visual and narrative form, so it is expected to increase students' attention, understanding, and motivation to learn. With the application of this model, a significant increase in students' interest in learning and learning outcomes is expected. The learning process will be more learner-centered, giving them space to be creative, discuss, and develop ideas in group projects. The results of the designed actions are expected to overcome the problems found in the pre-action and improve the quality of Sociology learning in the class.

Cycle Research Results

The planning stage in Cycle I began with preparing learning tools in accordance with the Merdeka Curriculum, including Learning Objective Flow (ATP), teaching modules, Student Worksheets (LKPD), and evaluation instruments. Researchers collaborated with teachers and observers to prepare observation sheets on student learning interests. This planning forms the basis for the implementation of actions consisting of three main meetings, following the Project-Based Learning (PjBL) syntax, namely: (1) determining fundamental questions, (2) project planning, (3) scheduling, (4) project implementation, (5) report/presentation preparation, and (6) learning outcome evaluation.

In the first meeting (January 21, 2025), the teacher presented the initial material on “Social Deviance” by posing fundamental questions to stimulate students' curiosity. Students were divided into heterogeneous groups and guided to develop a project plan in the form of a digital comic based on their understanding of the material. The activity involved perception, discussion, and project planning that fostered creativity and cooperation. The second meeting (February 4, 2025) focused on the topic “Forms of Social Deviance.” The teacher presented the material through a brief lecture and presentation, after which students continued their digital comic project with a more complete narrative relevant to social reality. The teacher acted as a facilitator, guiding discussions, assisting in refining the storylines, and ensuring each group progressed appropriately.

The second meeting (February 4, 2025) focused on the topic of “Forms of Social Deviance.” The teacher presented the material through a short lecture and presentation, after which the students continued working on their digital comic projects with more complete narratives that were relevant to social reality. The teacher acted as a facilitator, guiding discussions, helping to improve the storyline, and ensuring that each group progressed according to schedule. The third meeting (February 12, 2025) focused on evaluation. Students presented their project results in the form of digital comics to the class and received feedback. Additionally, a final test (posttest) was administered to measure how well students had mastered the concept of social deviance after completing the learning series.

Similarly, in Cycle II, the steps used still follow the PjBL syntax, with improvements based on reflections from Cycle I. The focus of actions is directed toward improving project quality, deepening content, and strengthening indicators of student learning interest to achieve the success targets.

Student Learning Result

From the data presented in the table and graph comparison of pretest and posttest learning outcomes of Cycle 1, it can be seen that there is a significant increase in the learning

outcomes of students in class X Phase E SMA Negeri 2 Rangsang. Before the action, only 25% of students were complete with an average score of 45.88, while after the action using the Project Based Learning learning model assisted by digital comics, the percentage of completeness increased to 50% with an average score of 61.37. The increase in the average score of 15.8 points shows that the application of the learning model is effective in improving the mastery of material and learning outcomes of students cognitively in the first cycle.

Interest in Learning

Observations of learning interest of students in class X Phase E SMA Negeri 2 Rangsang showed an increase after taking action in cycle 1 by using the Project Based Learning learning model assisted by digital comic media. Comparison data of pre-action and post-action learning interest in cycle 1 showed an increase in the percentage of learning interest from 5% to 45%. However, this increase in learning interest has not reached the maximum expected limit. Many learners still showed a lack of focus when learning took place, and there were still participants who were reluctant to actively participate in group activities, especially when creating digital comic projects. In addition, some learners are still lazy to record material if not reminded by the teacher, and there are bad habits such as not opening the reading material that has been provided.

From the observation results, it was found that interest in learning for each indicator was low, at around 35%, while the learning satisfaction indicator only reached 25%. This shows that although there has been progress, students' overall interest in learning still needs to be improved. Previously, only a few students were able to achieve the set learning outcomes, and after the actions in cycle I, the number increased, although it was not yet optimal. Therefore, further action is needed in Cycle II. Based on the reflection of Cycle I results, teachers and observers agreed to make several improvements in the next cycle, including rewarding group members who actively ask questions and respond, as well as presenting tips and tricks to understand Sociology material in a simpler way through apersepsi questions and short essay exercises. This step is expected to increase both student interest and learning outcomes, so that at least 75% of them can achieve mastery in line with the learning outcomes targets in Cycle II.

Cycle II Research Results

In the planning stage of cycle II, the implementation is almost the same as cycle I, namely the preparation of learning plans and devices such as Learning Objectives, Teaching Modules, learning media in the form of PowerPoint slides, prizes, and description questions for evaluation. The modules used are also the same, and still use the Project Based Learning (PjBL) learning model with the help of Digital Comics media. The main difference is in the submaterial taught. The implementation of cycle II actions was carried out in three meetings. The first meeting on February 19, 2025 began with initial activities such as greetings, prayers, checking attendance, and opening with questions and answers to trigger students' understanding of the impact of deviant behavior. The teacher provides material in the form of explanations with slide and video media, then learners write notes as a process of understanding. Next, learners are divided into heterogeneous groups to create a digital comic project on social deviance material. They are given reading materials and a project schedule that can be done at school or at home. Teachers and observers monitored the activities and progress of the project, and helped if there were any difficulties. At the end of the meeting, the group presented the results of the discussion and digital comics that had been made, with a question and answer session and input from the teacher and other groups. The activity ended with reflection and giving evaluation questions in the form of essays.

The second meeting on February 26, 2025 also began with prayer and a complete

Copyright © 2025 The Author(s)

attendance check. The material that day discussed efforts to overcome social deviance. The core activities began with a discussion using pictures of situations that triggered students' critical thinking. The discussion continued with the creation of digital comics that raised the theme of efforts to overcome social deviance. The project schedule is still the same, with monitoring and guidance from the teacher. Some groups have completed the comics, while those who have not are given additional time. At the end of the lesson, the comic results were presented using a laptop and projector. The third meeting on March 11, 2025 was filled with the implementation of the second cycle posttest to measure the improvement of learning outcomes after the application of the PjBL learning model with Digital Comics media. Before the posttest, the teacher reviewed the material from the previous meeting. Postest in the form of multiple choice tests and description questions, aims to obtain cognitive data on students' understanding of social deviation material. Documentation of the implementation of the posttest was also carried out.

At the observation stage, the teacher and observer observed the learning process and concluded that there was a significant development in the learners, who were able to produce good work and in accordance with their learning needs. Interviews with some learners showed that this learning model made them more comfortable and motivated to learn, especially with Digital Comic media that matched their interests and increased their confidence when presenting. From the learners' learning outcomes measured through pretest, cycle I posttest and cycle II posttest, there was a significant increase. Before the action (pre action), the average value of learning outcomes was 45.87 with a percentage of completeness of only 25%. After cycle I, the average increased to 61.37 with 50% completeness, an increase of 15.5 points and an increase in completeness of 25%. Furthermore, after cycle II, the average learning outcome increased again to 73.56 with 80% completeness, an increase of 11.19 points with an increase in completeness of 30%. This increase shows that the application of the Project Based Learning model with the help of Digital Comics media is effective in increasing students' interest and learning outcomes in the material of social deviation in class X Phase E SMA Negeri 2 Rangsang. These results have met the minimum target set by researchers, namely learning completeness of at least 75%.

Overall, the application of this learning model not only improves students' cognitive abilities, but also builds students' collaboration, creativity and confidence in learning sociology in a more interesting and relevant way with the development of technology and the learning style of today's younger generation.

Study interest

Based on the results of observations in Cycle I, the learning interest of Grade X students in Phase E at SMA Negeri 2 Rangsang showed an increase compared to the pre-action phase, although it did not yet meet the success indicators. In the pre-action phase, only around 5% of students were in the high learning interest category, whereas after implementing the Project-Based Learning (PBL) model with the support of digital comics in cycle I, the number increased to 45%. However, this achievement is still below the success criteria, which is a minimum of 80% of students reaching the high learning interest category.

Based on reflections with teachers, several improvements were made in cycle II, including giving awards to active students, using apersepsi questions, and presenting sociology learning tricks with short essays. In Cycle II, students' interest in learning increased significantly. The percentage of students in the high interest category reached 50%, and when combined with the very high category, the proportion reached 80%. Thus, the learning interest indicator has met the established standards.

Based on these achievements, the study was terminated in cycle II because the indicator of learning interest had been achieved. The application of the Project-Based Learning model supported by digital comics proved to be effective in increasing student engagement, attention, and understanding of sociology material, while also being in line with the learning characteristics of Generation Z, who require attractive and interactive digital learning media.

In dealing with the obstacles of lack of interest in learning in some students, teachers provide rewards and punishments in the form of reprimands to increase motivation. In addition, the teacher also used question and answer questions to train students' analysis and memory in social deviation material. In conclusion, the Project Based Learning learning model with the help of Digital Comics effectively increases students' interest in learning and learning outcomes in class X Phase E SMA Negeri 2 Rangsang, and the research can be stopped in cycle II because the expected target has been achieved.

Discussion

This study was conducted in class X Phase E of SMA Negeri 2 Rangsang in the subject of sociology with the material “Social Deviance” to overcome the problem of low student interest and learning outcomes. The solution applied was the use of the Project Based Learning (PJBL) model with the help of digital comics. The PJBL model emphasizes student creativity, collaboration, and communication in group work divided into 4 groups, with the ultimate goal of producing a product. The implementation of this learning model was carried out in two cycles, each consisting of planning, action, observation, and reflection, with three meetings per cycle. The first and second meetings were dedicated to learning activities, while the third meeting was used to review the material. The primary focus of this study was to enhance student interest and learning outcomes as the output of the learning process.

The learning outcomes of students obtained through the use of the Project Based Learning (PjBL) learning model assisted by Digital Comics media can be analyzed using two main theories, namely descriptive learning theory from Reigeluth and cognitivistic theory from Jean Piaget. According to Reigeluth, perspective learning theory focuses on achieving goals (goal oriented), while descriptive learning theory focuses on learning outcomes as a result of the interaction between methods and learning conditions (goal free) (Sah et al., 2024).

In the context of low learner learning outcomes, this is due to the lack of application of methods that involve learners actively. Therefore, the use of interactive methods such as PjBL can improve student learning outcomes, especially in Sociology subjects in class X Phase E SMA Negeri 2 Rangsang. Meanwhile, according to Piaget, children's cognitive development occurs through the same stages, although individual experiences differ. Children understand the world using cognitive schemes that are continuously adjusted through the process of assimilation and accommodation. The equilibration mechanism explains how learners move from one stage of thinking to the next by resolving cognitive conflicts. Thus, Piaget's theory emphasizes the importance of active involvement of learners in the learning process so that the understanding of the material is deeper.

In applying the PjBL model assisted by Digital Comics, teachers need to actively involve students, starting from grouping, understanding sociological material, compiling comic scripts and storylines, to making comics collaboratively. This is in line with the implications of Piaget's theory which encourages the active role of students in learning to produce better understanding. Thus, teachers must integrate the principles of the theory in the learning process so that students' learning outcomes improve significantly (Anonymous, 2024).

Copyright © 2025 The Author(s)

In pre-action activities to cycle II in class X Phase E SMA Negeri 2 Rangsang, students' interest in learning has increased significantly through the application of the Project Based Learning (PjBL) learning model assisted by Digital Comics media. In pre-action, interest in learning is still very low with a percentage of only 5%. After cycle I, there was an increase to 45%, and in cycle II it rose to 50%. This increase can be seen from the active students in heterogeneous groups consisting of 5 members with different abilities and gender. Although some participants still obtained sufficient scores, overall interest in learning had increased and most participants began to be active in working on digital comics.

The analysis of this increase in learning interest can be explained through Thorndike's behavioristic theory which emphasizes the stimulus-response relationship in the learning process. Thorndike stated that changes in behavior occur through three laws, namely the law of readiness (individuals are ready to accept changes), the law of practice (repetition strengthens the association of stimulus and response), and the law of consequences (pleasant results strengthen behavior) (Liu, 2024).

In this learning context, teachers provide stimulus through learning methods that involve group work and collaboration in making digital comics. Although learners initially experience difficulties due to the new method, through repeated practice they become accustomed to it and positive responses begin to emerge. In addition, the learning process is supported by the utilization of sociology textbooks that can be accessed by students in the library, adding to their learning resources. Thus, the Project Based Learning model assisted by Digital Comics is proven to be effective in increasing students' interest in learning in class X Phase E SMA Negeri 2 Rangsang, especially in Sociology subjects.

Classroom Action Research (CAR) on improving interest and learning outcomes through the Project-Based Learning (PjBL) model supported by digital comics in class X Phase E at SMA Negeri 2 Rangsang has several limitations that need to be noted. First, this research was only conducted in one class within one school, so the results cannot be generalized to a broader context. Second, the success indicators of the study focused on improving student interest and learning outcomes in the sociology subject with the topic “Social Deviance,” so the effectiveness of applying this model to other subjects or topics has not been tested. Third, the study was conducted over only two cycles, so the long-term impact of using PjBL with digital comics on the sustainability of student learning interest cannot be fully determined. These limitations can serve as opportunities for further research, such as expanding the research subjects to other classes or schools, testing the application of this model in various subjects, or investigating its sustainability in the long term. Thus, further research is expected to strengthen the validity of the results and provide a more comprehensive picture of the effectiveness of the PjBL model assisted by digital comics as an alternative learning strategy.

Conclusion

The use of project-based learning (PBL) supported by digital comics in class X Phase E at SMA Negeri 2 Rangsang has been proven to significantly increase students' interest in learning and learning outcomes in Sociology. The percentage of interest in learning increased from 5% in the pre-action phase to 45% in cycle I and 50% in cycle II. Additionally, learning outcomes also improved, with average scores and completion rates increasing from pre-intervention (average score of 45.87 with 25% completion rate), Cycle I (average score of 61.37 with 50% completion rate), to Cycle II (average score of 73.56 with 80% completion rate). Thus, this learning model is effective as a solution to address low student interest and learning outcomes prior to the implementation of the intervention. The limitations of this study lie in its

scope, which only covers one class at SMA Negeri 2 Rangsang, thereby limiting the generalizability of the results. Additionally, this study only focuses on aspects of learning interest and learning outcomes without examining other factors, such as students' collaboration skills or creativity. Therefore, further research is recommended to test the effectiveness of this model at different grade levels, subjects, and school contexts, as well as to include additional variables to obtain a more comprehensive understanding of the impact of project-based learning using digital comic media.

References

Alfieri, L., Brooks, j p, & Aldrich, J. N. (2020). Does Discovery-Based Instruction Enhance Learning?" Journal of Educational Psychology. *Journal of Educational Psychology*, *112(4)*, *69*.

Andiani, R., Ayu, N., & Wulandari, A. (2020). Minat Belajar Siswa Kelas V SD N Winong 01 Pati pada Pembelajaran Online Berbasis Aplikasi WhatsApp. *Jurnal Pendidikan Guru Sekolah Dasar*, *8(2)*, *123–*.

Anonymous. (2024). How does active learning pedagogy shape learner curiosity? A multi-site mediator study of learner engagement among 45,972 children. *Journal of Intelligence*.

Arifin, S., & Muslim, S. (2021a). Analisis literasi teknologi guru dalam menghadapi pembelajaran abad 21. *Jurnal Pendidikan Dan Kebudayaan*, *11(2)*, *144*.

Arifin, S., & Muslim, S. (2021b). Arifin, S., & Muslim, S. (2021). Analisis literasi teknologi guru dalam menghadapi pembelajaran abad 21. *Jurnal Pendidikan Dan Kebudayaan*, *11(2)*, *144*.

Arikunto, S. (2020). Penelitian Tindakan Kelas Sebagai Sarana Pemecahan Masalah Pembelajaran Dan Peningkatan Kompetensi Guru. *Jurnal Pendidikan*.

Arnida, F. (2023). Peningkatan Minat Baca Melalui model Project Based Learning). *Social Studies*, *8* no *2*.

Aura, S. S., Prana, I. D., & Julia. (2024). Pembuatan Komik Digital sebagai PJBL di Kelas IV. *Modeling : Jurnal Program Studi PGMI*, *11 NO 2*.

Citra, K., Abdul, G., & Elin, I. (2024). Model Project Based Learning (PjBL) Berbasis Media Canva Untuk Meningkatkan Kreativitas Siswa Kelas X DPIB Pada Materi Keterkaitan Kerajaan Hindu Budha Dengan Kerajaan Galuh. *Jurnal Wahana Pendiidkan*, *11* no *2*.

EuScience. (2020). *Kecakapan abad 21 dalam pendidikan: Menyiapkan peserta didik untuk masa depan.* Diakses Dari Https://Gtk.Kemdikbud.Go.Id/Read-News/40-Persen-Guru-Yang-Siap-Dengan-Teknologi (Diakses Tanggal 10 Desember 2024).

Hapsari, M. N., & Setiawan, D. (2021). Analisis minat belajar peserta didik dalam pembelajaran daring. *Jurnal Pendidikan Edutama, 8(1)*, *75–8*.

Hidi, S., & Renninger, A. K. (2019). Interest development: An interaction between situational and individual interest. *Educational Psychologist*, *54(1)*, *35-*.

Lestari, & Yudhanegara. (2024). Analisis minat belajar siswa dalam pembelajaran matematika menggunakan kartu permainan pecahan biasa-desimal. *Jurnal Inovasi Penelitian Tindakan Kelas Dan Sekolah*.

Liu, M. (2024). Application of Trial-and-Error Theory to Legal Research Teaching. *Advance Online Publication*.

Ngarifah, I. (2023). Analisis minat belajar siswa sekolah menengah pertama terhadap pelajaran Bahasa Arab. *Jurnal Pendidikan Bahasa Arab*.

Novita, D., & Surjono, D. H. (2021). Pengembangan media komik digital interaktif untuk meningkatkan minat belajar siswa sekolah dasar. *Jurnal Inovasi Teknologi Pendidikan*, *8(2)*, *141–*.

Copyright © 2025 The Author(s)

Oktovina, T. S. (2024). Pengaruh Model Problem Based Learning Dengan Media Canva Terhadap Kemampuan Berpikir Kritis. *Jurnal Review Pendidikan Dan Pengajaran*, *7* no *3*.

Rahmatika, D. N., & S, W. (2021). Implementasi Penelitian Tindakan Kelas Sebagai Upaya Perbaikan Proses Pembelajaran. *Jurnal Pendidikan*.

Ricardo, R., & Meilani, I. R. (2021). Analisis minat belajar peserta didik dalam pembelajaran daring di masa pandemi COVID-19. *Jurnal Basicedu*, *2170–2178.*

Sah, F., Sasikirana, N. H., & Pujiani, T. (2024). The implementation of project-based learning in developing 21st-century skills in EFL class. *Journal of Development and Innovation in Language and Literature Education*.

Suprapto, N., & Wahyuni, C. (2020). Project-based learning: Pembelajaran inovatif berbasis masalah nyata dalam kehidupan sehari-hari. *Jurnal Pendidikan Sains Indonesia*, *8(1)*, *32–4*.

--- This page is intentionally left blank---