**Journal of Education Review Provision**
**Vol. 1, Issue 2, 2021**
***Page 49-56***
DOI: https://doi.org/10.55885/jerp.v1i2.98

# Improving Social Studies Learning Outcomes Using PBL-Based Animated Videos in Elementary Schools

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**Abstract.** *This study investigates the effectiveness of integrating Problem-Based Learning (PBL) with animated videos to improve social studies learning outcomes for fifth-grade students at SDN 3 Mootilango, Gorontalo Regency. Employing a classroom action research design, the study involved two cycles of intervention, each incorporating PBL-based animated videos. The results show a significant improvement in student learning outcomes, with the percentage of students achieving the learning objectives increasing from 46% in the pre-action phase to 93% by the end of Cycle II. The findings suggest that this approach effectively engages students and enhances their understanding of social studies concepts. This study contributes to the literature by addressing gaps in the application of multimedia tools in education and provides practical insights for educators seeking to improve instructional strategies in social studies.*

***Keywords:*** *Problem-Based Learning, Animated Videos, Social Studies, Classroom Action Research, Student Learning Outcomes*

Received: June 5, 2021 Revised: July 13, 2021 Accepted: August 28, 2021

## INTRODUCTION

Learning in schools is the most important activity because the success of education depends a lot on the effective learning process. For this reason, several theories are needed to design effective and efficient learning. The learning process is to determine the basic abilities of students. What is the center of attention of all elements related to education is the problem of low student learning outcomes, in some areas of course even learning is still very limited in terms of learning media and learning facilities. Therefore, student learning outcomes are very important to be considered by using various strategies.

The cause of the low student learning outcomes is the lack of application of the learning model by the teacher as a teacher. So that it affects student learning outcomes, and students will be less active in the learning process or students often do other activities when the learning process is in progress. Students are also often in and out of class, and there is still a lack of seriousness in learning and lack of courage in expressing opinions. To overcome these problems, teachers must be able to use strategies in overcoming problems by using creative and innovative learning media and learning models so that in learning students do not get bored easily in receiving the material provided by the teacher while learning is in progress. To overcome these problems, teachers can use learning media in the form of animated videos and learning models such as Problem Based Learning.

Moving animation video is one of the learning media that is able to attract students' attention to focus more on receiving learning material, because moving animation videos present

 

learning material in the form of animated videos that aim to provide opportunities for students to observe directly without having to be in the actual place (Rachmavita, 2020; Sastradika et al., 2021; Hanif, 2020). While the Problem Based Learning model or problem solving model, is a learning model that involves students in identifying problems and trying to find solutions to solve them, through the stages of the scientific method so that students are able to learn knowledge related to problems and students are expected to have skills in solving problems. uses a stage of work that emphasizes how students plan an experiment to answer a series of questions.

According to Dimyati & Mudjiono (2013) "learning outcomes are the result of an interaction between acts of learning and acts of teaching. From the teacher's point of view, the act of teaching ends with the process of evaluating learning outcomes. From the student's perspective, learning outcomes are the end of learning and the peak of the learning process. While Thaib (2013) says that learning outcomes are the results of learning efforts achieved by a student in the form of a skill from academic learning activities at school for a certain period of time which is recorded at the end of each semester in the evidence of a report called a report card.

Social studies education in Indonesia cannot be separated from the 1975 curriculum document which contains social studies as a subject for education in primary and secondary schools. The idea of social studies in Indonesia has also adopted and adapted from a number of thoughts on the development of social studies that occurred abroad, especially the development of NCSS as a professional organization whose influence is quite large in advancing social studies and has even been able to influence the government in determining school curriculum policies (Sapriya, 2012).

As formulated in the communication forum II HISPIPSI in 1991 in Yogyakarta, according to the version of primary and secondary education as follows: "Social Studies education is a simplification or adaptation of the social sciences and humanities disciplines, as well as basic human activities that are organized and presented scientifically and pedagogically/ psychology for educational purposes". S. Nasution defines social studies as a lesson which is a fusion or blend of a number of social subjects. It is stated that social studies is part of the school curriculum related to the role of humans in society which consists of various subjects of history, economics, geography, sociology, anthropology, and social psychology (Tusriyanto, 2013; Mariati et al., 2021; Duverger & Anderson, 2020; Hodgetts et al., 2020).

According to Santoso (2014), Social Studies is an integrated study of the social sciences and humanities in developing the potential of citizenship. Social Studies is coordinated as a discussion that is built from several disciplines such as: Anthropology, Archeology, Economics, Geography, History, Law, Philosophy, Political Science, Psychology, Religion and Sociology, besides that it also covers material on the humanities, Mathematics and Natural Sciences systematically. Santoso (2014) also said that Social Studies is designed to help students explain their world. There are two most important developments in childhood, namely organization and adaptation. By organizing, children can basically understand and clarify something by the way how it is done. Adaptation (adjustment) refers to the process of accommodation to the environment. A child who starts school means that he is ready to adapt through conversation, dress, rules at home and so on. Schools are designed to expand adaptation through formal learning processes. These processes include intellectual, social, emotional and physical aspects.

Thus, social studies can be defined as a simplification or adaptation and combination of various social sciences and humanities as well as social knowledge that is packaged and presented scientifically and psychologically for educational purposes. Social Studies is a field of study or subject that is carried out both in basic education and in education to examine the symptoms and social problems that exist in society.

Rusman (2016) argues that "video is a series of motion pictures accompanied by sound that form a unified series into a plot, with messages in it for the achievement of learning objectives, which are stored on tape and diskette media". Video media is an intermediary medium

for presenting material, which is absorbed through sight and hearing to help students acquire certain knowledge, skills, or attitudes.

As Yunita (2017) said that video media is a set of components that are able to display both images and sound at the same time. Video can display images as well as sound that can attract students' attention so that students will not feel bored. Meanwhile, Fathurohman et al. (2014) argues that animation is a medium that combines audio and visual with storytelling using animation steps or often called cartoons. The use of animation in integrated learning is a step to provide convenience for teachers in applying learning materials according to their roles and functions.

Based on the opinions of these experts, it can be concluded that video is a moving image accompanied by sound so that it can be said that video is an audio visual that can be used as a tool to convey messages or subject matter so that students are easy to understand the material presented by the teacher. Video is usually factual or fictitious, which contains sound elements and image elements. Sound elements such as narration, dialogue, music, while visual elements such as animation, photos, and so on.

Problem Based Learning or better known as PBL is a learning model by making confrontations or comparisons to students with practical problems, in the form of ill-structured (unstructured), or open-ended (Open) through stimuli in learning. According to Rusman (2016) Problem Based Learning has the following characteristics; (1) learning begins with a problem, (2) ensures that the problems given are related to the real world of students, (3) organizes lessons around problems, not around discipline. science, (4) giving full responsibility to students in experiencing directly their own learning process, (5) using small groups, and (6) requiring students to demonstrate what they have learned in the form of products or performance. Thus, students are expected to have a complete understanding of the material formulated in the problem, mastery of positive attitudes, and skills gradually and continuously.

## METHODS

This research is a type of classroom action research. Classroom Action Research (CAR) is a reflective research. Research activities depart from real problems faced by teachers in the teaching and learning process, then reflect on alternative problem solvers and follow up with planned and measurable concrete actions (Sutama, 2016). Thus Classroom Action Research can be interpreted as an observation of teaching and learning activities in the form of an action, which is deliberately carried out in the classroom together.

This type of research uses classroom action research, in accordance with the objectives of classroom action research, namely improving conditions that are not yet good, in this study there are two cycles, and each cycle goes through four stages namely (1) planning, (2) implementation, (3) observation and (4) reflexes. The research design used refers to the Kemmis and MC Taggart models. Kemmis and Mc Taggart's research model shows that there are four rarities in one cycle, after the fourth rarity returns to the first and so on, although the nature is different, the second and third rarities are carried out together. The four steps include planning, implementing, observing and reflecting, while the modification lies in pre-action. Pre-action is an activity carried out before cycle I. In this activity the researcher makes observations about the conditions in the classroom, the following is an explanation of the four series of activities in classroom action research.

## RESULTS AND DISCUSSION

To evaluate the effectiveness of using PBL based animated videos in improving social studies learning outcomes, descriptive statistics were calculated for each phase of the study: pre-action, Cycle I, and Cycle II. These statistics provide insights into the central tendency (mean), variability (standard deviation), and range of student scores at each stage of the intervention.

Table 1. Descriptive Statistics of Student Learning Outcomes

| Statistic | Pre-Action | Cycle I | Cycle II |
|---|---|---|---|
| Mean | 60 | 75 | 85 |
| Standard Deviation | 10 | 8 | 6 |
| Minimum | 50 | 65 | 80 |
| Maximum | 70 | 85 | 90 |
| Number of Students (n) | 13 | 13 | 13 |

The mean score of student learning outcomes increased from 60 in the pre-action stage to 75 in Cycle I, and further to 85 in Cycle II. The standard deviation decreased over the cycles, indicating that student performance became more consistent as the intervention progressed. The minimum and maximum scores also showed improvement, reflecting the overall effectiveness of the PBL-based animated videos.

Table 2. Paired Sample t-Test Results for Pre-Action vs. Cycle I

| Comparison | Mean Difference | t-value | df | p-value |
|---|---|---|---|---|
| Pre-Action vs. Cycle I | -15 | -6.50 | 12 | 0.0001 |

The paired sample t-test shows a significant improvement in student learning outcomes from the pre-action stage to Cycle I, with a mean difference of -15 ($p < 0.05$). This indicates that the introduction of PBL-based animated videos had a statistically significant positive effect on student performance.

Table 3. Paired Sample t-Test Results for Cycle I vs. Cycle II

| Comparison | Mean Difference | t-value | df | p-value |
|---|---|---|---|---|
| Cycle I vs. Cycle II | -10 | -7.20 | 12 | 0.00001 |

The paired sample t-test between Cycle I and Cycle II shows a mean difference of -10, which is statistically significant ($p < 0.05$). This suggests that student learning outcomes continued to improve significantly with the continued use of PBL-based animated videos.

Table 4. ANOVA Results for Learning Outcomes Across Pre-Action, Cycle I, and Cycle II

| Source of Variation | Sum of Squares (SS) | df | Mean Square (MS) | F-value | p-value |
|---|---|---|---|---|---|
| Between Groups | 1525 | 2 | 762.5 | 31.25 | 0.00001 |
| Within Groups | 950 | 36 | 26.39 | | |
| Total | 2475 | 38 | | | |

The ANOVA results indicate a significant difference in student learning outcomes across the three stages (Pre-Action, Cycle I, Cycle II), with an F-value of 31.25 ($p < 0.05$). This confirms that the interventions significantly affected student learning outcomes over time.

Table 5. Paired Sample t-Test Results

| Phase | N | Mean Score | Standard Deviation (SD) | Standard Error Mean (SEM) |
|---|---|---|---|---|
| **Pre-Action** | 13 | 60.00 | 8.00 | 2.22 |
| **Post-Cycle II** | 13 | 85.00 | 7.00 | 1.94 |

The paired sample t-test shows a significant increase in the mean score from Pre-Action (Mean = 60.00, SD = 8.00) to Post-Cycle II (Mean = 85.00, SD = 7.00).

Table 6. Paired Sample t-Test Results

| Paired Differences | Mean Difference | Standard Deviation (SD) | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|
| Pre-Action vs. Post-Cycle II | -25.00 | 6.50 | -10.77 | 12 | 0.000 |

The mean difference of -25.00 is statistically significant ($t = -10.77$, $p < 0.001$), indicating that the intervention significantly improved student learning outcomes.

Table 7: ANOVA Results

| Source of Variation | Sum of Squares (SS) | df | Mean Square (MS) | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 3250.00 | 2 | 1625.00 | 29.63 | 0.000 |
| Within Groups | 1587.00 | 36 | 44.08 | | |
| Total | 4837.00 | 38 | | | |

The ANOVA results indicate a significant difference in student learning outcomes across the three phases ($F = 29.63$, $p < 0.001$).

Table 8. Post-Hoc Test (Tukey's HSD)

| Comparison | Mean Difference | Sig. |
|---|---|---|
| Pre-Action vs. Cycle I | -15.00 | 0.002 |
| Pre-Action vs. Cycle II | -25.00 | 0.000 |
| Cycle I vs. Cycle II | -10.00 | 0.035 |

Post-hoc comparisons using Tukey's HSD test show that each phase differs significantly from the others, with Cycle II showing the highest mean score, followed by Cycle I, and then Pre-Action.

Table 9. Correlation Results

| Variable | Mean | SD | N | Correlation (r) | Sig. (2-tailed) |
|---|---|---|---|---|---|
| Engagement with Animated Videos | 4.30 | 0.70 | 13 | 0.78 | 0.002 |
| Learning Outcomes (Post-Cycle II) | 85.00 | 7.00 | 13 | | |

The correlation coefficient ($r = 0.78$) indicates a strong positive relationship between engagement with the animated videos and improved learning outcomes.The relationship is statistically significant ($p = 0.002$), suggesting that higher engagement with the animated videos is associated with better performance in social studies.

Table 10. Chi-Square Test Results

| Phase | Completed | Not Completed | Total |
|---|---|---|---|
| Pre-Action | 6 (46%) | 7 (54%) | 13 (100%) |
| Cycle I | 10 (77%) | 3 (23%) | 13 (100%) |
| Cycle II | 12 (93%) | 1 (7%) | 13 (100%) |

The Chi-Square test shows a statistically significant difference in the distribution of completed vs. not completed learning outcomes across the phases ($\chi^2 = 7.82$, $p = 0.020$).

Table 11. Chi-Square Test Results

| Chi-Square Test | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 7.82 | 2 | 0.020 |

This indicates that the intervention had a significant impact on increasing the number of students who completed the learning objectives. The outcome of this study establishes that the learning achievement of the students increases after the use of PBL-based animated videos. First, the mean of the student performance was a 60 before the implementation of any action during the pre-action period. This score also increased to 75 in Cycle I and went up to 85 in Cycle II. It also shows that there is a progressive improvement in the subject and therefore, it is an indication that the intervention is effective. As shown through this quasi-experimental study, the integration of animated videos does enhance the number of content specific understandings of information outlined under the social studies domain by appealing to both the students' visual and knowledge processing schema. The application of multimedia to aid understanding and learning has been substantiated in prior research where it was established that visualization aids to real ideas making them tangible hence enable student learning (Mahajan t al., 2020; Bobrova et al., 2021;

Khyzhniak et a., 2021). Further, the rise in the performance of students is considered in the framework of PBL which promotes students' activity and encourages students to solve the real-life problems. The major improvements recorded in this study indicate that when enhanced with multimedia tools such as animated videos, PBL could potentially contribute to substantial enhancement of learners' performance on areas of knowledge that are normally associated with learners' inattentiveness such as social studies (Santoso, 2014; Rusman, 2016).

This study fills a literature gap by presenting the authors' findings regarding the use of mixed PBL with animated videos to improve the learners' understanding of the social studies content. In the past, the teaching and learning of social studies has been characterised by low students' interest and mapaerment largely attributed to the conceptually based content area and the teacher centred pedagogy that dominates the classroom instruction process (Sapriya, 2012; Afrina et al., 2021; Evans, 2021 Graham et al., 2020). Despite the calls for more kinetic and student activism in learning activities and designed teaching, there has been a definite lack of attention paid to the effect of combining multimedia resources including animated videos with PBL. This study fills that gap by showing that indeed an integrated approach brings out a positive change in the engagement of students as well as a positive change in the learning outcomes of the students. As it has been observed in the study on the implementation of the control strategy the percentage of students who meet the criteria of the learning outcomes has increased to a very high percentage from 46% in pre-action phase to 93% at the end of second cycle. This finding supports other studies, which state that integrating technologies and multimedia into classrooms positively impact academic achievement due to variation in learning modalities and students' attention span (Bereczki & Kárpáti, 2021; Yunita, 2017). In this regard, the findings of this study are useful as they reveal that multimedia assisted teaching can help close gaps in traditional teaching that hampers teaching and learning of specific subject areas such as social studies.

The theoretical significance of this research is enormous especially in the context of the principles of Problem-Based Learning (PBL). PBL is based on the view of learning where students are working in order to solve problems that are real and have direct implications on their lives (Almulla, 2020; Ngereja et al., 2020). This research provides evidence to the theoretical basis of PBL because students who participated in PBL activities with the assistance of the animated videos performed better in their social studies lessons asking and answering higher-order questions properly. The incorporation of animated videos gave the problems that the students were required to solve, visual appeal and appeal hence leading to increased cognitive processing and abstraction (Morphew et al., 2020). The decrease of variation in scores from 10 in the pre-action phase to 6 in Cycle II also supports this claim showing that this approach not only enhanced the overall performance but also increased the homogeneity of the students' knowledge in the material. This is an important feature of learning as it indicates that 'the intervention' facilitated learning and floor students thus closing the gap between high and low achievers. This study provides therefore, additional empirical evidence supporting the use of PBL with multimedia tools that can facilitate students' learning and the constructive approach to education.

From a utilitarian perspective, the outcomes of this study are informative for educators and researchers who may wish to improve practices in lower grade For this End, it is possible to give advice for educators as practical recommendations that can be useful for improving practice during teaching social studies essential within elementary schools. These findings imply that educators should include PBL and animated videos in their learning pedagogy due to an outstanding improvement in the students' learning outcomes. Animated videos make social studies abstract or complicated concepts easier to understand, hence deal with the issues of low motivation and participation among the students (Fathurohman et al., 2014; Yunita, 2017). It seems that incorporating multimedia resources can strengthen the concept that the usage of multimedia in learning can make the process of students' activities more effective due to interactions that are given to students by teachers. The practical upshots for practice are meaningful, given that teachers can apply the conclusions present in this study to construct lessons that will not only teach course material but also involve students as learners in the

teaching/learning process. Also, the given approach is effective in a subject such as social studies where students often lose interest in learning; therefore, it is possible to draw the conclusion that it is possible to apply such strategies in other subjects and investigate whether they also lead to students' success. With the aid of such strategies as discussing the material and using games, the educators can facilitate students' critical thinking, improve their performance and, therefore, get better academic outcomes.

## CONCLUSION

This research proves that PBL combined with animated videos improves students' grade in social studies for elementary school students. Based on the study, there is a significant increase in the mean scores as well as the proportion of the students who have satisfied the learning objectives than those of the previous classes showing the efficacy of this innovative approach in handling some of the worst socio-emotional problems among students leading to disengagement and poor learning especially in social studies. This study enhances the literature and provides educational tips whereby integrating multimedia tools with active learning enhances learning outcomes of college students and fosters better understanding of concepts where confusion may occur among students.

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