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The Effect of Digital Flipbook Media on Improving Science Literacy on Human Digestive System Materials Among Elementary School Students

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Abstract: This research aims to compare the effectiveness of two learning approaches in enhancing students' scientific literacy skills at the secondary school level. The methods employed were quasi-experimental with two groups: an experimental group applying Project-Based Learning (PjBL) using flipbook media, and a control group implementing conventional learning using PowerPoint media. Data were gathered through pretests and posttests administered to both groups. The findings revealed that the experimental group experienced a significant improvement in scientific literacy skills compared to the control group. The percentage of students who showed an increase in posttest scores in the experimental group (81.48%) was higher than that in the control group (53.57%). Data analysis also indicated lower result variability in the experimental group, highlighting consistency in learning effectiveness. Based on the research findings, the importance of interactive and contextual learning approaches in facilitating students' understanding of scientific concepts, with PjBL and flipbook media being more effective methods, is emphasized. The contribution of this research lies in providing a deeper understanding of the influence of learning methods and media on students' learning outcomes, with direct implications for teaching practices in schools.

Keywords: Flipbook media; Learning approaches; Primary school; Project-Based Learning (PjBL); Scientific literacy skills

Introduction

Science education at the elementary school level plays an important role in shaping the basis of students' scientific knowledge (Carl et al., 2016; Glew et al., 2019). Science literacy skills, namely the ability to understand scientific concepts and apply them in daily life, are competencies that every student must have. However, in practice, science teaching often faces various challenges, such as limited learning media and low student interest in science materials. Learning media that is not interactive and interesting can be one of the causes of low student science literacy. The material of the human digestive system, for example, is often considered difficult by students because of its abstract nature and requires good visualization to understand it. In this context, the use of digital technology in the form of digital flipbooks can be an innovative solution. A digital flipbook is an electronic book that allows readers to flip the pages in a similar way to reading a printed book, but with the addition of interactive features such as animation, audio, and video. This study focuses on the influence of the use of digital flipbook media on students' science literacy skills on human digestive system materials in elementary schools. The use of digital flipbooks is expected to increase students' interest and motivation to learn, so that they can more easily understand the material presented. Thus, this research has high relevance in efforts to improve the quality of science education in elementary schools through technological innovation (Asad et al., 2020; Nedungadi et al., 2018).

The main problem raised in this study is the low science literacy of elementary school students on the

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material of the human digestive system. Based on initial observations, many students have difficulty understanding the basic concepts of the human digestive system. They tend to memorize material without understanding how the digestive organs work and interact with each other. In addition, the learning media used in schools are often less attractive, so that students' interest in learning is low. The limitations of conventional learning media, such as textbooks and static images, make the material of the human digestive system difficult for students to understand. Textbooks are often not able to provide adequate visualization to explain the processes that occur in the human body. This has an impact on the low ability of students to connect scientific concepts with daily life, which is the essence of science literacy (Sukmawati, 2017; Sukmawati et al., 2020). There have been several previous studies that have discussed the use of digital media in science learning, but there are still few that specifically examine the use of digital flipbooks in the context of science literacy in human digestive system materials. Most research focuses more on the use of video or other interactive applications, while digital flipbooks offer their own uniqueness because they combine visual, audio, and interactivity elements in a format that is easily accessible and used by students.

This research fills this gap by exploring how digital flipbooks can improve students' understanding of human digestive system material. In addition, this study also seeks to see the extent to which digital flipbook media can affect students' motivation to learn and interest in science. Thus, this research makes a significant contribution to the development of innovative learning media that is effective in improving science literacy. The novelty of this study lies in the use of digital flipbooks as an interactive learning medium for human digestive system materials. The digital flipbook used in this study is specially designed with interactive features that can help students understand abstract concepts better (Apriliana & Sukmawati, 2021; Fikriyah & Sukmawati, 2022; Wanningrum & Sukmawati, 2023). For example, animations depicting the process of digesting food, explainer videos by experts, as well as interactive quizzes to test students' understanding firsthand.

In this digital era, the application of technology in education is becoming increasingly important. Digital flipbooks as an interactive learning medium have great potential to change the way science is taught in elementary schools (Fauziah et al., 2023; Sukmawati & Zulherman, 2023). This research is expected to provide empirical evidence regarding the effectiveness of digital flipbooks in improving science literacy, as well as provide practical recommendations for teachers and learning media developers in implementing this technology in the classroom. Based on this background, researchers are interested in answering challenges in science education in elementary schools by offering innovative solutions through the use of digital flipbooks. Thus, it is hoped that it can make a real contribution to improving the quality of science education and equipping students with strong science literacy skills to face.

This research is important because of the critical role of science education at the elementary school level as the primary foundation for shaping students' scientific understanding (Carl et al., 2016; Glew et al., 2019). Strong science literacy skills, including the ability to comprehend scientific concepts and apply them in daily life, are essential for fostering students' critical thinking and informed decision-making abilities. However, science teaching often encounters challenges such as limited engaging learning media and low student interest in science subjects. The human digestive system serves as a concrete example where students frequently struggle to grasp complex processes within the human body, which require effective visualization for comprehension. In this context, this research explores the use of digital flipbooks as an innovative solution. Digital flipbooks offer unique features including interactive elements like animations, audio, and videos, which can enhance students' interest and motivation in learning. By focusing on science literacy related to the human digestive system at the elementary school level, this study aims to make a significant contribution to improving the quality of science education through the utilization of advanced and innovative technology.

Method

This study uses a quasi-experimental design with a pretest-posttest approach involving two groups: the experimental class and the control class. The purpose of this study is to evaluate the influence of the use of digital flipbook media on students' science literacy skills on human digestive system material. The experimental group will use digital flipbooks in the learning process, while the control group will use conventional learning media. The research population was grade V students from several elementary schools, and the purposive sampling technique was used to select two classes that had similar characteristics, with one class as the experimental group and the other class as the control group. The research instrument used is a science literacy ability test that is specifically designed to measure students' understanding of human digestive system material. This test was given to both groups before and after treatment (pretest and posttest). The research procedure begins with preparation, including the

preparation and validation of test instruments, the development of digital flipbooks, and the training of the teachers involved. After that, a pretest was carried out to measure students' initial science literacy skills in both groups.

For several weeks, the experimental group used digital flipbooks in learning, while the control group used conventional learning media. Posttests are carried out after the treatment period to measure changes in students' science literacy skills. The collected data was analyzed using the Rasch Model with a stacking and racking approach. In the stacking approach, the pretest and posttest data of each student are combined into a single dataset, allowing for a longitudinal analysis that tracks changes in students' science literacy abilities over time. In the racking approach, pretest and posttest data are processed to determine changes in the difficulty level of the questions. Rasch analysis was carried out using software such as WINSTEPS to estimate the parameters of students' abilities and item difficulties, as well as compare students' abilities between pretest and posttest to identify improvements in science literacy (Creswell, 2014; Laliyo et al., 2022; Sukmawati, 2017; Sukmawati et al., 2023). The results of this study are expected to provide empirical evidence regarding the effectiveness of digital flipbooks in improving students' science literacy and become a reference for the development of innovative learning media in elementary schools, as well as provide practical recommendations for teachers in implementing this technology in the classroom.

Result and Discussion

Based on Tables 1 and 2, the analysis of pretest and posttest data from the experimental and control classes showed changes in students' science literacy skills. In the experimental class that used flipbook media and the Project-Based Learning (PjBL) model, the average pretest score was -0.0508 with a standard deviation of 1.1542545. After the intervention, the average posttest score increased to 0.5872 with a standard deviation of 0.9318821. On the other hand, in the control class that used PowerPoint media and classical learning methods, the average score of the pretest was 0.28 with a standard deviation of 1.0328446, and the average score of the posttest decreased to -0.2812 with a standard deviation of 0.9465614. Positive changes in the experimental class showed that the use of flipbook media and the PjBL model was effective in improving students' science literacy skills.

The increase from an average score of -0.0508 in the pretest to 0.5872 in the posttest illustrates that this learning method is able to help students understand science concepts better. The standard deviation that decreased from 1.1542545 to 0.9318821 showed that the variation in student learning outcomes was also getting smaller, indicating that more students experienced an even increase in understanding (Izzah & Sukmawati, 2022; Sukmawati et al., 2021b). On the other hand, the control class experienced a significant decrease in the average score from pretest to posttest. The average score decreased from 0.28 to -0.2812 indicating that the classical learning method with PowerPoint media may be less effective in improving students' science literacy skills than the method applied in the experimental class. Although the standard deviation also decreased from 1.0328446 to 0.9465614, it reflected more of an even decline in ability among students rather than an increase in comprehension.

Table 1. Racking Class Experiment

Items	Posttest		Pretest	
	Measure	S.E.	Measure	S.E.
1	1.35	0.41	1.18	0.41
2	1.52	0.41	0.85	0.41
3	1.69	0.42	1.18	0.41
4	1.87	0.41	1.69	0.42
5	0.67	0.42	0.49	0.43
6	0.31	0.44	-0.11	0.48
7	1.87	1.03	1.18	0.56
8	-0.11	0.48	-0.64	0.56
9	0.67	0.42	0.49	0.43
10	1.52	0.41	0.85	0.41
11	-0.64	0.56	-1.45	0.75
12	-0.11	0.48	-0.11	0.48
13	-0.11	0.48	-1.45	0.75
14	-0.64	0.56	-2.2	1.03
15	-0.99	0.62	-2.2	1.03
16	1.52	0.41	0.85	0.41
17	-0.99	0.62	-1.45	0.75
18	0.49	0.43	-0.36	0.51
19	1.52	0.41	0.85	0.41
20	-0.36	0.51	-0.99	0.62
21	1.18	0.41	1.18	0.41
22	1.52	0.41	0.85	0.41
23	1.18	0.41	0.49	0.43
24	0.11	0.46	-1.45	0.75
25	-0.36	0.51	-0.99	0.62
Mean	0.5872		-0.0508	
S.D.	0.9318821		1.1542545	

Table 2. Racking Class Experiment

Items	Pretest		Posttest	
	Measure	S.E.	Measure	S.E.
1	-0.26	0.43	-0.26	0.43
2	1.54	0.42	0.26	0.4
3	0.42	0.4	-0.07	0.42
4	1.54	0.42	0.26	0.4
5	0.26	0.4	-0.07	0.42
6	0.89	0.39	0.26	0.4
7	-2	0.75	-2.75	1.03
8	-0.45	0.45	-0.07	0.42
9	0.89	0.39	0.1	0.41
10	1.54	0.42	0.58	0.39
11	0.48	0.4	-2	0.75
12	1.21	0.4	0.1	0.41
13	-0.26	0.43	-0.26	0.43
14	-2	0.75	-2.75	1.03
15	-2	0.75	-1.54	0.62
16	0.73	0.39	0.1	0.41
17	0.58	0.39	-0.26	0.43
18	1.37	0.41	0.26	0.4
19	-0.26	0.43	-0.26	0.43
20	-0.26	0.43	-0.91	0.51
21	0.42	0.4	0.26	0.4
22	0.1	0.41	0.42	0.4
23	0.42	0.4	0.73	0.39
24	1.37	0.41	0.42	0.4
25	0.73	0.39	0.42	0.4
Mean	0.28		-0.2812	
S.D.	1.0328446		0.9465614	

This difference can be explained through the characteristics of both learning methods. The PjBL model and the use of flipbooks tend to be more interactive and encourage students to be more involved in the learning process. Students are invited to undertake projects that require an in-depth understanding and application of science concepts, so that they are more motivated and have the opportunity to explore the material more thoroughly. Flipbooks as a medium also provide interesting visualizations and can help students understand abstract concepts more easily. In contrast, the classical learning method with PowerPoint may be less appealing to students and tend to be more passive. Students receive more information directly without much interaction or independent exploration, which can reduce their in-depth understanding and interest in the subject matter (Fitria & Sukmawati, 2022; Sukmawati, 2022; Sukmawati & Wijiastuti, 2021). This is reflected in the decrease in the average score in the control class. Overall, these results show that the application of the PjBL model with flipbook media is more effective in improving students' science literacy skills than the classical learning method with PowerPoint. While there are challenges in implementation, especially when it comes to adapting students to new methods, the long-term benefits in improving student understanding and engagement appear significant. Further research and development of this method can further strengthen these findings and help in designing more effective learning strategies in the future. For more clarity see Figures 1 and 2.

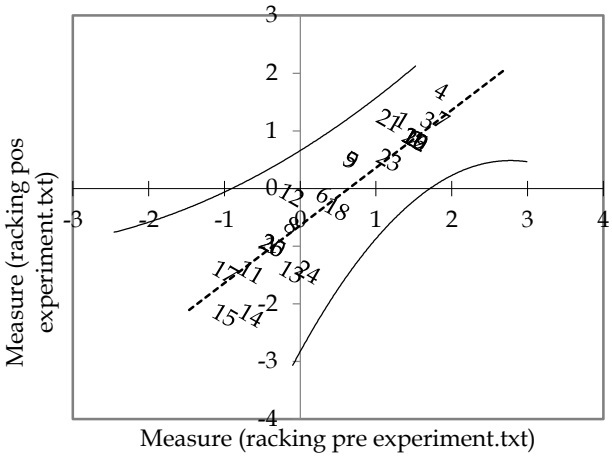

Figure 1. Racking Class Experiment

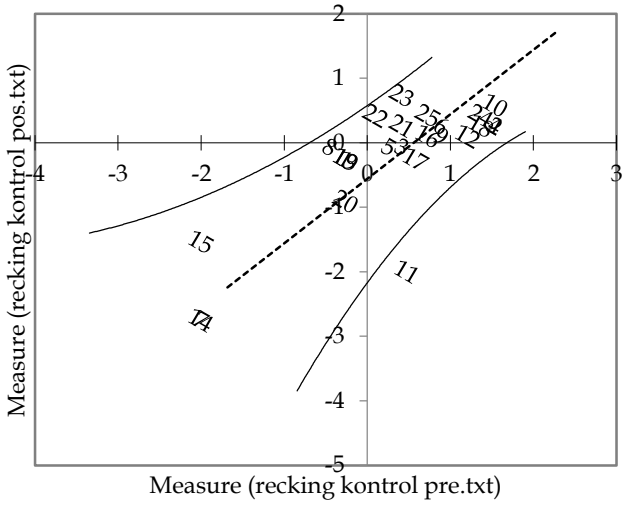

Figure 2. Racking Class Control

Based on Figures 1 and 2, the analysis of the problem difficulty data between the experimental and control classes shows a striking difference in the change in students' science literacy ability. In the experimental class, which used flipbook media and the Project-Based Learning (PjBL) model, most of the questions showed a

significant increase in comprehension. Of the 25 questions tested, 17 had a decrease in difficulty, which means that about 68% of the questions became easier for students after learning. These questions show higher posttest scores than pretests, as seen in Question 2, Question 3, Question 4, Question 10, and others. This decrease in difficulty level reflects that the PjBL approach and flipbook media are effective in increasing students' engagement and understanding of science materials. In contrast, in the control class that used PowerPoint media and classical learning methods, only 8 out of 25 questions showed a decrease in difficulty, which is about 32% of the total questions. Most of the questions in the control class showed lower posttest scores than the pretest, as seen in Question 2, Question 3, Question 4, and Question 6, which showed that this method was less effective in helping students understand science concepts well. The decrease in the percentage of questions that became easier in the control class showed that learning with PowerPoint media and classical methods tended to be less effective than more interactive and project-based approaches(Apriliana & Sukmawati, 2021; Ramadhani & Sukmawati, 2022). Based on these data, this information shows that the use of flipbook media and the PjBL model has a more positive impact on improving students' science literacy compared to the classical learning method with PowerPoint media. A higher percentage of problems that experienced a decrease in difficulty in the experimental class showed that students were better able to understand and apply the concepts taught. Therefore, the integration of technology and more interactive learning methods such as PjBL can be an effective strategy to improve student learning outcomes in science subjects. For more clarity, see Figures 3 and 4.

Based on Figures 3 and 4, the experimental class showed better results than the control class in improving students' science literacy skills due to the use of Project-Based Learning (PjBL) methods and flipbook media. PjBL actively involves students in the learning process through projects that require the application of science concepts directly. It increases students' engagement, motivation, and understanding of the material. Additionally, flipbooks provide engaging and easy-to-understand visualizations for complex concepts, helping students internalize the material more effectively. Interactive approaches in experimental classrooms, such as discussions, experiments, and projects, encourage active learning and provide immediate feedback to students. This is in contrast to the classical learning methods used in control classes, which tend to be passive and lecture-based with PowerPoint. Dominant lecture-based learning often leaves students only receiving information without much opportunity for exploration or interaction, thus reducing deep understanding and motivation to learn. The use of various methods and media in the experimental classroom makes learning more varied and interesting, increasing students' interest and curiosity in science (Corkin et al., 2021; Owens et al., 2021). Overall, a more dynamic, interactive, and relevant approach in the experimental classroom significantly improved students' science literacy skills compared to the classical learning methods in the control class.

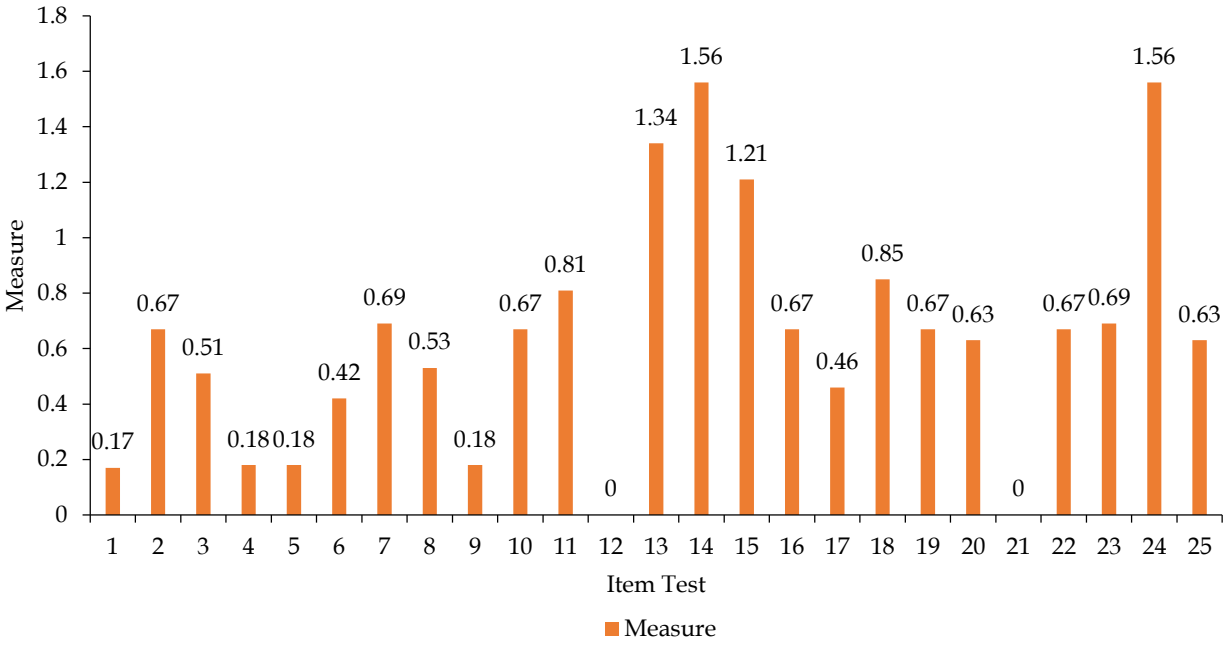

Figure 3. Difficultly Level Item Class Experiment

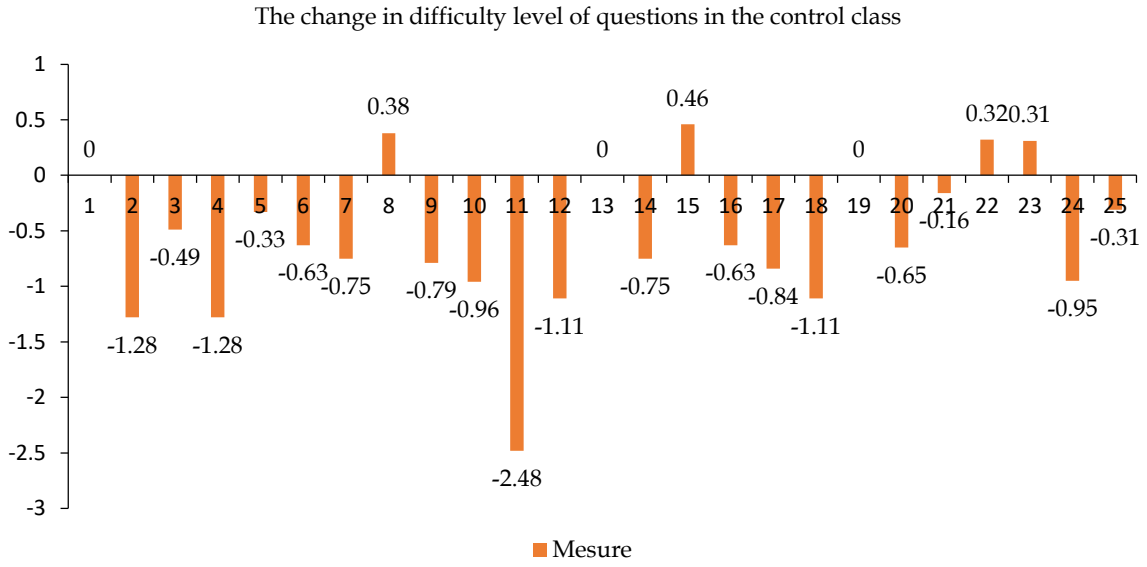

Figure 4. Difficultly Level Item Class Control

The analysis of posttest and pretest data from the experimental and control classes showed significant differences in changes in students' science literacy skills. The experimental class, which uses flipbook media and the Project-Based Learning (PjBL) model, experienced a greater improvement compared to the control class that used PowerPoint media and classical learning methods. In the experimental class, the average posttest score was 2.26 with a standard deviation of 1.25, while the average pretest score was 0.99 with a standard deviation of 0.87. This significant improvement shows that the use of flipbooks and PjBL effectively improves students' understanding of science materials. Examples of questions that show a big increase include question number 8, which increased from -0.12 to 3.65, and question number 18, which increased from 2.87 to 4.9. This shows that the PjBL approach allows students to better understand the concepts taught through active engagement and practical application. In contrast, the control class showed more varied and less significant results in improving science literacy skills. The average posttest score was 1.13 with a standard deviation of 1.08, while the average pretest score was 0.46 with a standard deviation of 0.86. Some questions even showed a decrease in scores, such as question number 1 which dropped from 0.35 to -0.02, and question number 6 which dropped from 2.27 to -0.21. Although there was an increase in some questions, such as question number 25 which increased from -0.61 to 3.49, the overall improvement was not comparable to that of the experimental class. This shows that the classical learning method with PowerPoint is less effective in increasing students' in-depth understanding of the material.

Table 3. Stacking Class Experiment

Subject	Posttest		Pretest	
	Measure	S.E.	Measure	S.E.
1	2.37	0.65	0.92	0.48
2	0.7	0.47	0.7	0.47
3	2	0.58	1.15	0.49
4	2	0.58	0.7	0.47
5	2	0.58	1.15	0.49
6	2	0.58	0.7	0.47
7	2.37	0.65	2.37	0.65
8	3.65	1.04	-0.12	0.45
9	0.92	0.48	-0.52	0.45
10	3.65	1.04	-0.12	0.45
11	2.37	0.65	0.92	0.48
12	3.65	1.04	-0.12	0.45
13	2	0.58	0.92	0.48
14	0.49	0.46	0.49	0.46
15	2	0.58	1.15	0.49
16	0.49	0.46	0.49	0.46
17	2	0.58	1.15	0.49
18	4.9	1.83	2.87	0.76
19	2	0.58	0.92	0.48
20	0.7	0.47	0.7	0.47
21	4.9	1.83	2.87	0.76
22	2	0.58	0.92	0.48
23	2	0.58	1.15	0.49
24	2	0.58	1.15	0.49
25	4.9	1.83	2.87	0.76
26	0.92	0.48	0.08	0.45
27	2	0.58	1.15	0.49
Mean	2.2585185		0.9855556	

S.D.	1.2513214	0.8681967

Table 4. Stacking Class Control

Subject	Pretest		Posttest	
	Measure	S.E.	Measure	S.E.
1	0.35	0.43	-0.02	0.43
2	0.35	0.43	1.62	0.52
3	0.69	0.45	1.62	0.52
4	0.17	0.43	0.93	0.45
5	-0.02	0.43	1.91	0.56
6	2.27	0.63	-0.21	0.44
7	-1.33	0.52	-0.61	0.46
8	0.93	0.45	1.15	0.47
9	1.37	0.49	1.62	0.52
10	-1.07	0.5	1.91	0.56
11	0.73	0.44	-0.61	0.46
12	0.93	0.45	1.62	0.52
13	0.93	0.45	0.54	0.44
14	0.54	0.44	1.37	0.49
15	0.73	0.44	0.73	0.44
16	0.35	0.43	-0.41	0.45
17	-0.41	0.45	0.35	0.43
18	-0.41	0.45	0.73	0.44
19	-1.07	0.5	2.27	0.63
20	1.15	0.47	1.37	0.49
21	0.54	0.44	0.93	0.45
22	0.35	0.43	-0.21	0.44
23	0.17	0.43	1.37	0.49
24	1.62	0.52	1.62	0.52
25	-0.61	0.46	3.49	1.03
26	1.91	0.56	0.35	0.43
27	1.37	0.49	3.49	1.03
28	0.35	0.43	2.73	0.75
Mean	0.46		1.1303571	
S.D.	0.8605314		1.0838868	

This difference can be explained through several factors. First, the PjBL model applied in the experimental classroom involves students in real projects that require the application of science concepts, increasing learning engagement and motivation. Students not only receive information passively but also actively seek solutions and apply the knowledge they have acquired, leading to a deeper and more sustainable understanding (Durocher & Potvin, 2020; Sukmawati, 2023; Sukmawati et al., 2022; Sukmawati et al., 2021a). Second, the use of flipbooks as a learning medium offers higher visual advantages and interactivity than PowerPoint. Flipbooks can present information in the form of attractive images and animations, making it easier for students to understand complex concepts. This visualization is very helpful in facilitating the understanding and retention of information. In contrast, the classic learning method with PowerPoint tends to be more passive. Students usually only listen to presentations and look at slides, which may be less engaging and less actively involving them in the learning process. This can make it more difficult for students to understand and remember the information conveyed. Overall, this analysis shows that the use of the PjBL method and flipbook media in the experimental class is more effective in improving students' science literacy skills compared to the classical learning method with PowerPoint in the control class. A more interactive, visual, and contextual approach can help students better understand science concepts and significantly improve their learning outcomes. It emphasizes the importance of innovation in learning methods and media to achieve better educational outcomes. For more clarity see figures 5 and 6.

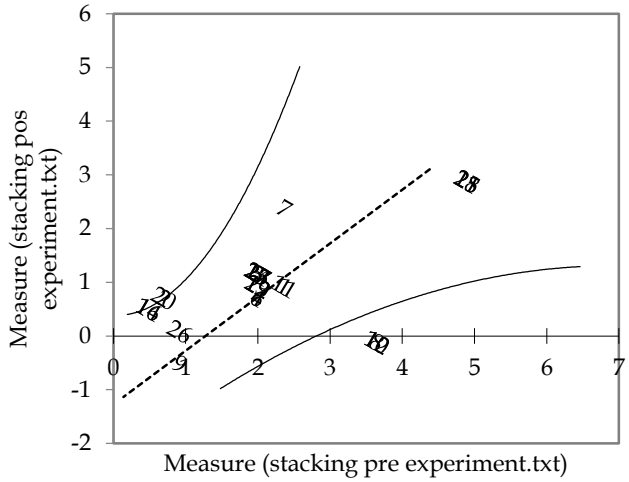

Figure 5. Scientific Literacy Class Experiment

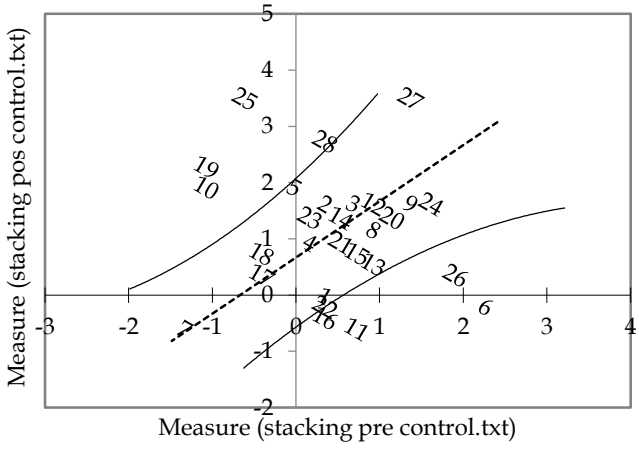

Figure 6. Scientfic Literasy Class Control

To analyze the percentage of students who experienced an increase in science literacy skills between the experimental and control classes, we need to look at the number of students whose posttest scores were higher than their pretest scores in each class. In the experimental class, there were 27 students. From the data provided, the majority of students showed an increase in scores on the posttest compared to the pretest. For example, students with question number 1 increased from 0.92 to 2.37, students with question number 3 increased from 1.15 to 2, and students with question number 18 increased from 2.87 to 4.9. After calculating, there were 22 out of 27 students who experienced an increase in scores, which means that around 81.48% of students in the experimental class showed an improvement in science literacy skills. In the control class, there were 28 students. From the data provided, there are several students who have experienced an increase in posttest scores compared to pretest. For example, students with question number 2 increased from 0.35 to 1.62, students with question number 5 increased from -0.02 to 1.91, and students with question number 19 increased from -1.07 to 2.27. After counting, there were 15 out of 28 students who experienced an increase in scores, which means that around 53.57% of students in the control class showed an improvement in science literacy skills. This analysis shows that the experimental class has a higher percentage improvement than the control class. A more significant increase in science literacy skills in the experimental classroom can be attributed to the use of Project-Based Learning (PjBL) methods and flipbook media. PjBL encourages active involvement of students in the learning process, which enhances the in-depth understanding and application of science concepts. Flipbooks, with their higher visualization and interactivity, help students understand complex material in a more engaging and accessible way. In contrast, the classical learning method with PowerPoint used in the control classroom is more passive and less involving students in the active learning process. Presentations that tend to be one-way make it more difficult for students to participate and understand concepts in depth, which is reflected in a lower percentage of improvement. Overall, these data support the conclusion that interactive and project-based learning methods are more effective in improving students' science literacy skills than classical learning methods. With a higher percentage of improvement in experimental classrooms, it is important to consider the implementation of more innovative learning strategies and engage students to achieve better educational outcomes. For more clarity, see Figures 7 and 8.

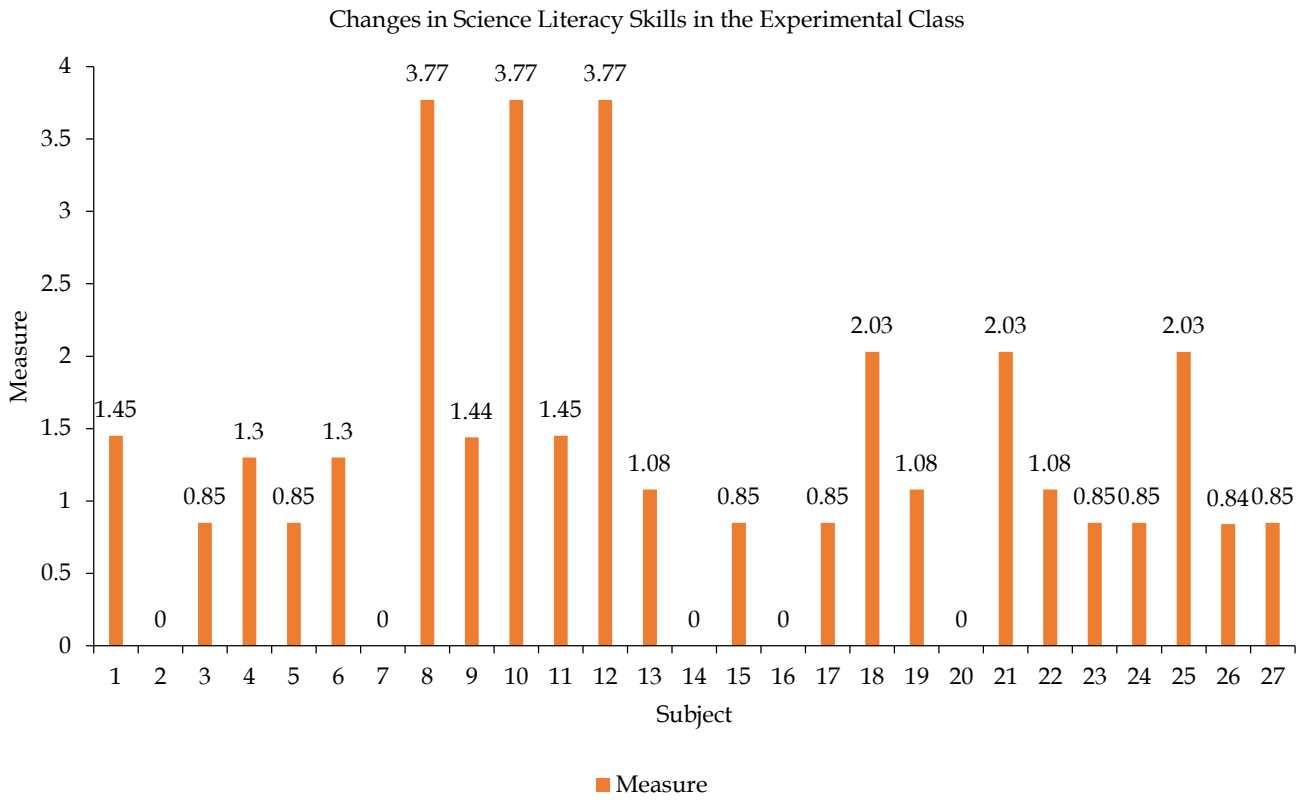

Figure 7. Scientific Literacy Class Experiment

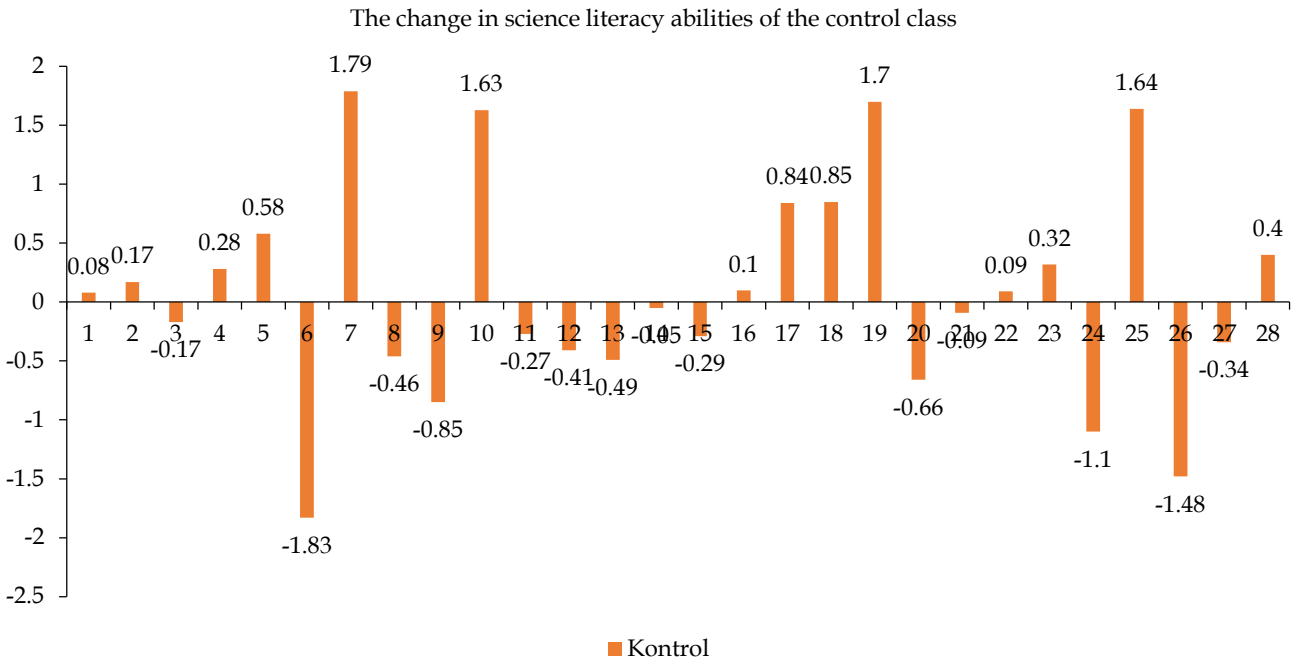

Figure 8. Scientfic Literasy Class Control

Figure 9. Sample Flipbook

Data stacking between the experimental and control classes showed that the experimental class experienced a more significant increase in science literacy ability compared to the control class. In the experimental class, which used flipbook media and the Project-Based Learning (PjBL) model, 81.48% of students experienced an increase in posttest scores compared to pretest. In contrast, in the control class, which used PowerPoint media and classical learning methods, only 53.57% of students experienced improvement. This discussion underlined the advantages of the PjBL method and flipbook media in improving student understanding. PjBL encourages students to be actively involved in the learning process through relevant and applicable projects, so that students can relate science concepts to real-life experiences.

Flipbooks, with their engaging and interactive visualizations, help students understand complex material in a more fun and accessible way. On the other hand, the classical learning method with PowerPoint in the control classroom tends to be more passive and less actively involve students. Presentations dominated by lectures and static slides may be less effective in facilitating in-depth understanding and long-term retention. These data show that more interactive and project-based learning approaches, such as those applied in experimental classrooms, can significantly improve students' science literacy skills. Therefore, it is important for educators to consider the use of more innovative learning methods and media and engage students to achieve better educational outcomes.

Conclusion

Based on the findings of this study, it is evident that Project-Based Learning (PjBL) integrated with flipbook media significantly enhances secondary school students' scientific literacy skills compared to conventional learning using PowerPoint media. The research employed a quasi-experimental design with an experimental group using PjBL and flipbook media, and a control group using traditional PowerPoint presentations. Pretest and posttest assessments were conducted to measure students' scientific literacy before and after the interventions. The results showed that a substantial majority of students in the experimental group (81.48%) demonstrated improved posttest scores, surpassing those in the control group (53.57%). Additionally, the experimental group exhibited lower variability in their results, indicating more consistent learning outcomes compared to the control group. These findings underscore the effectiveness of interactive and project-based approaches, coupled with multimedia tools like flipbooks, in fostering deeper understanding and application of scientific concepts among students. This study contributes valuable insights into the pedagogical strategies that can optimize student learning outcomes in secondary science education. By emphasizing the benefits of PjBL and interactive media, particularly flipbooks, educators and curriculum developers can refine teaching practices to better engage students and enhance their scientific literacy skills effectively. Future research could further explore the specific mechanisms through which PjBL and flipbook media influence learning outcomes across diverse educational contexts.

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Author Contributions

For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "Conceptualization, R.M.H contributed to the data collection process, data processing, and article writing. W.S contributed to the data processing and article writing.

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Conflicts of Interest

The authors declare no conflict of interest.

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