https://jurnal-umbuton.ac.id/index.php/taksonomi
https://doi.org/10.35326/taksonomi.7056

Taksonomi: Journal of Basic Education Research
Volume 5 Number 1 Year 2025

E - ISSN: 2798-947X
P - ISSN: 2986-6499

Application of Think Pair Share Learning Model Assisted by Flipbook Media to Improve Learning Outcomes of Grade IV IPAS SDN 2 Datar

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Abstracts

This research is motivated by the use of learning models and learning media which are still minimal in IPAS learning at SDN 2 Datar. This study aims to evaluate the impact of the Think Pair Share (TPS) learning paradigm, supported by flipbook media, on Improvving the learning outcomes of grade IV students at SDN 2 Datar. A quasi-experimental design with a single group pretest-posttest was the research methodology employed. This study uses primary data sourced from the results of students' pretest and posttest. The approach used in this study is a quantitative approach. The results showed that the average pretest score of 56.00 increased significantly to a posttest score of 89.63 or increased by 33.63 points. The results of the Paired Sample T-Test analysis showed a significance value of 0.000 (<0.05) which indicated a significant difference in learning outcomes before and after the intervention. The implications of this research for the world of education are to encourage the use of learning models assisted by learning media to improve learning outcomes. Through this research, teachers and schools can be convinced to use learning models and learning media as an effort to improve student learning outcomes.

Keywords: Think Pair Share, Flipbook, Learning Outcomes Science Education.

1. Introduction

In the world of education in Indonesia, the learning system has undergone quite significant changes along with the entry of the era of globalization (Setyawati et al., 2021). Learning outcome as one of the benchmarks of the success of the teaching and learning process plays an important role in determining the quality of education. This can be the main reference in forming good habits, not only for students but also for all parties involved (Santoso et al., 2020). Teachers are pushed to capable of use various learning instruments, such as models, methods, and learning media to increase students' interest in learning (Rizkasari et al., 2022). Unfortunately, the use of these instruments is often not optimal, resulting in low student learning outcomes (Winangsih & Harahap, 2023).

One of the subjects that is considered difficult and often produces low learning outcomes is IPAS. In the subject of Natural and Social Sciences (IPAS), especially at the Elementary School level, students are required to be able to think rationally and comprehend the context of natural phenomena. However, based on the results of observations at SDN 2 Datar, the learning methods applied tend to be monotonous, namely lectures, assignments, and questions and answers. This shows that in science

learning at SDN 2 Datar, the use of learning models is quite minimal, which ultimately also results in minimal use of learning media.

In fact, the application of learning models is very important, as stated by Ismaya & Santoso (2019) that by considering the level of psychological development, since elementary school pupils are unable to completely comprehend the depth and complexity of social and natural problems, learning models play a crucial role. As a result, students lose interest in learning, do not understand the concept of the material, and get grades below the Learning Objective Achievement Criteria (KKTP). As per the researcher's observation findings, it was found that students in class IV of SDN 2 Datar tend to be passive during learning, they prefer to receive information completely from the teacher without being actively involved during the learning process.

The issue that leads to the attainment of learning competencies, according to (Larasati et al., 2022), especially in science subjects, lack of student involvement in teaching and learning activities is considered suboptimal. According to Ismaya & Santoso (2019) Many students prefer to be silent and lack confidence in expressing their opinions. When the teacher asks questions, the answers are given simultaneously, this shows a lack of student confidence in answering individually. Even though the teacher has given the opportunity, students often feel embarrassed to ask and are more comfortable asking friends.

Cossistent with the research of Ardianti and Raida (2022) and Ardianti and Wanabuliandari (2021) which found that if science teachers do not utilize the school environment, especially the culture in the environment as a source of student learning, there is the potential for students to experience confusion because they feel they are studying abstract material and learning becomes less meaningful. A learning approach called Think Pair Share enables students to work together with their peers in addition to thinking alone. In this process, they can share ideas and views with each other, which ultimately enriches understanding through group discussions and helps develop critical thinking skills together (Pradana, 2021).

This model is part of cooperative learning that focuses on encouraging students to actively discover concepts and skills through an independent learning process. Think Pair Share provides opportunities for students to reflect, discuss, and help each other understand the material. For example, after the teacher delivers a short story or students finish reading, they will be given time to think and share ideas with classmates (Susanto et al., 2022). Meanwhile, Thayyibandhi and Sudianto in Syafitri and Eliyasni (2021)stated that through the TPS model, students become more active participants in learning.

Innovative learning models such as Think Pair Share (TPS) are one solution that can improve student learning outcomes. The TPS model facilitates students to think independently, discuss in small groups, and share discussion results with the class, thus encouraging active student participation (Tussakdia et al., 2022). Additionally, using interactive learning resources like flipbooks can make learning more engaging and less boring for students. Flipbooks as digital teaching materials equipped with attractive animations can improve student learning outcomes. As written by (Ardianti et al., 2023)that the learning tools that have the most direct influence on students are teaching materials.

To optimize the Think Pair Share learning model's application in science education, teachers can apply learning media. Flipbooks are the learning tool that researchers recommend. (Rahmawati et al., 2022) claimed that flipbooks are educational resources that are digital books that appear to move when the pages are turned. therefore, through this study, it can be seen how the integration between learning models and learning media can improve student learning outcomes. this certainly accelerates the learning objectives, namely to make students understand the material being taught. learning outcomes as one of the indicators that strengthen the level of student understanding of the material being taught. This is because the teaching materials received by students include the content and activities that they will undergo during the learning process (Ardianti and Ulya, 2021). In this study, the current issue is determining how much change occurs in grade IV pupils at SDN 2 Datar and comparing the learning results before and after utilizing the TPS model with flipbooks.

2. Research Methods

This study uses an experimental method with a quasi-experimental. The subjects of this study were fourth grade students of SDN 2 Datar located in Datar Village, Mayong District, Jepara Regency, Central Java Province. This study used a pre-experimental design with a one group pretest-posttest type. The experimental group of 30 students consisting of 15 female students and 15 male students underwent a research process that included a pretest, following treatment with the Think Pair Share (TPS) learning approach with flipbook media, and a posttest. The sample of this study was selected using a saturated sampling technique, namely all fourth grade students were included in the sample. This research design uses one group pretest and posttest. Data collection was carried out through several methods, namely pretest and posttest assessments, interviews with homeroom teachers, and observations of the learning process. The test aims to assess the increase in students' understanding of science, while interviews and observations provide additional insight into class dynamics and the effectiveness of learning approaches. For data analysis, this study used a quantitative approach, involving a normality test to assess the distribution of data, a Paired Sample T-Test to determine whether there was a significant difference in student learning outcomes before and after the intervention, and an N-Gain test to measure the magnitude of improvement in student learning outcomes.

3. Results and Discussion

3.1 Results

The research took place over five meetings, with a pretest implementation schedule, Greenhouse Effect teaching materials (consisting of three meetings), and posttest. Based on the data obtained, there was a significant increase in students' cognitive learning outcomes, reflected in the average pretest score which only reached 56.00, and increased to 89.63 in the posttest. Through the increase in scores from pretest to posttest, it can be seen how successful the use of the TPS model assisted by flipbooks is in improving students' science learning outcomes.

Table 1. Recapitulation of Prerest and Posttest Results

Data Size	Pretest	Posttest
Data Amount	30	30
Lowest	40	75
Highest	70	100

Average of Scores	56,00	89,63
Varians	81,034	52,033
Deviation Standards	9,002	7,213

Source: Researcher's Data, 2025

With the highest pretest score being 70 and the highest posttest score being 100. Before moving on to the Paired Sample T-Test and N-Gain tests, a normality test was conducted using the Shapiro-Wilk test to make sure the data were normally distributed.

Table 2. Normality Test Result

	Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	56.00	30	9.002	1.644
	89.63	30	7.213	1.317

Source: Researcher's Data, 2025

The pretest and posttest significance scores were 0.165 and 0.138, respectively, which were larger than 0.05 and indicated that the data were normally distributed, according to the normality test results displayed in Table 2. Additionally, a Paired Sample T-Test was used to examine the variations in student learning outcomes prior to and during treatment.

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest – Posttest	-33.633	9.390	1.714	-37.140	-30.127	-19.619	29	.000

Picture 1. Paired Sample T-Test Result

Source: Researcher's Data, 2025

The null hypothesis (Ho) is rejected in the Paired Sample T-Test findings because the sig value is 0.000, which is less than 0.05.

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_Score	30	.43	1.00	.7688	.16013
Ngain_Persen	30	42.86	100.00	76.8790	16.01291
Valid N (listwise)	30				

Picture 2. Output N-Gain Test of IPAS Understanding Result

Source: Researcher's Data, 2025

With a percentage value of 76.88% in enhancing student learning outcomes, the average N-Gain score for the science comprehension test is 0.7688, falling into the high category.

Table 3. N-Gain of Learning Outcome's Indicators Results

No	**Indicators of IPAS Understanding**	**Pretest**	**Posttest**	**Ngain_Score**	**Characteristics**
1.	Remembering (C1)	71,25	94,58	0,811594	High

No	Indicators of IPAS Understanding	Pretest	Posttest	Ngain_Score	Characteristics
2.	Understanding (C2)	67,08	88,75	0,658228	Moderate
3.	Applying (C3)	65,83	90,42	0,719512	High
4.	Analyzing (C4)	47,50	98,33	0,968254	High
5.	Evaluating (C5)	27,50	74,17	0,643678	Moderate
6.	Creating (C6)	31,67	80,00	0,707317	High

The table above explains that the first indicator (remembering) can be seen from the difference in the percentage of pretest results of 71.25% and posttest of 94.58%. The N-gain score obtained was 0.811594, indicating a high category. The increase was influenced by the learning process assisted by flipbook media, where students were given material through flipbooks that could be accessed online so that they could repeat the explanation of the material in the flipbook and also open the material book if they forgot. This is what resulted in the percentage of students remembering after the flipbook media was applied being higher. This idea is reinforced by the opinion of Suriandari and Harahap (2024) who stated that visual media has a very crucial role in supporting the learning process. Its existence can provide a significant contribution in deepening students' understanding of the material presented. By presenting visual representations, complex information can be simplified, making it easier to understand. In addition, Nashihin et al. (2020) visual media has also been shown to be effective in helping to strengthen memory, because humans tend to remember things that are presented visually more easily than information that is only conveyed verbally. Therefore, the use of visual media in learning is a very important strategy to create a more effective and enjoyable learning experience.

Indikator kedua (memahami) dapat dilihat perbedaan presentase hasil pretest sebesar 67,08 % dan posttest sebesar 88,75 %. N-Gain Score yang diperoleh sebesar 0,658228 yang menunjukkan kategor sedang. Hal tersebut dikarenakan siswa tidak hanya mendapat materi dari flipbook tetapi juga bisa melaksanakan praktik untuk membuktikan materi efek rumah kaca. Hal ini sesuai bahwa dalam menerapkan teori pembelajaran IPAS dibutuhkan suatu kegiatan percobaan atau praktikum karena dengan adanya percobaan siswa lebih mudah memahami. Hal ini sejalan dengan pendapat Fatimah (2020) bahwa metode pembelajaran praktik langsung adalah pendekatan pembelajaran yang dirancang untuk memberikan pengalaman nyata kepada siswa. Metode ini bertujuan melatih keterampilan siswa secara langsung dalam lingkungan yang relevan, sekaligus meningkatkan kemampuan mereka untuk menerapkan pengetahuan teoretis yang telah dipelajari. Dengan cara ini, siswa tidak hanya memahami konsep secara abstrak tetapi juga mampu mengintegrasikan dan mengaplikasikannya ke dalam situasi praktis. Partono et al. (2021) turut mengemukakan bahwa metode ini sangat efektif untuk membangun kompetensi teknis, meningkatkan kepercayaan diri, dan mengasah kemampuan problem-solving, sehingga siswa lebih siap menghadapi tantangan di dunia nyata.

The third indicator (applying) can be seen in the difference in the percentage of pretest results of 65.83% and posttest of 90.42%. The N-Gain Score obtained was 0.719512 which is included in the high category. This is because students in the experimental class during learning apply the learning theory that has been obtained in conducting observations/experiments, where they concretely apply the steps of observation activities. This is in line with the opinion of Hurit and Wati (2020) who stated that the use of experimental methods in the Natural Sciences (IPA) learning

process has a significant positive impact on improving student learning outcomes. Afsas et al. (2019) stated that with this method, students are given the opportunity to be directly involved in practical activities, such as conducting experiments and observations, so that they can better understand the concepts taught in depth. In addition, the experimental method is also able to stimulate curiosity, increase active involvement, and help students connect theory with real practice. This shows that the experimental-based learning approach is not only effective in improving understanding of the material, but also in motivating students to learn more enthusiastically and independently.

Indikator keempat (menganalisis) dapat dilihat perbedaannya pada presentase hasil pretest 47,50 % dan posttest 98,33 % dengan N-Gain Score sebesar 0,968254 dengan kategori tinggi. Melalui pemberian teratment, level siswa dalam menganalisis lebih tinggi presentasenya. Hal ini disebabkan karena dalam proses pembelajaran model Think Pair Share siswa akan lebih percaya diri dan aktif berdiskusi di dalam kelas karena siswa sudah membaca materi dari flipbook, sehingga di dalam kelas guru berfokus pada pemahaman siswa melalui kegiatan diskusi dan presentasi untuk mebantu siswa meningkatkan pengetahuannya sendiri. Hal ini sejalan dengan Munir et al. (2023) yang mengungkapkan bahwa penggunaan model Think Pair Share terbukti memiliki dampak positif dalam meningkatkan hasil belajar siswa sekaligus memperkuat rasa percaya diri mereka. Dengan pendekatan ini, siswa diberikan kesempatan untuk berpikir secara mandiri, berbagi gagasan dengan teman sebaya, dan berkolaborasi dalam diskusi kelompok kecil. Rada et al. (2021) menyebutkan bahwa proses ini tidak hanya mendorong pemahaman yang lebih mendalam terhadap materi pelajaran, tetapi juga membantu siswa untuk lebih percaya pada kemampuan mereka sendiri dalam menyampaikan ide, menjawab pertanyaan, dan berpartisipasi aktif dalam pembelajaran.

The fifth indicator (evaluating) can be seen in the difference in the percentage of pretest results of 27.50% and posttest 74.17% with an N-Gain Score of 0.643678 in the moderate category. This is because after students make observations and discussions related to the results of working on the questions, they find a truth so that they are able to evaluate the results of observation and discussion activities. In line with Ratnadi (2019) who stated that the application of the small group discussion method has proven to be very effective in supporting the learning process. This method encourages students to be actively involved in discussions, share ideas, and work together with their group members. This active participation not only increases students' enthusiasm for learning but also deepens their understanding of the material taught by Subakti et al. (2024). With direct interaction, students can help each other explain concepts, answer questions, and solve problems together. As a result, student learning achievement in science subjects showed a significant increase. This small group discussion also builds students' social skills, such as communication, cooperation, and a sense of responsibility for group learning outcomes.

Terakhir indikator keenam (menciptakan) dapat dilihat perbedaannya pada presentase hasil pretest 31,67 % dan posttest 80,00 dengan N-Gain Score sebesar 0,707317 dengan kategori tinggi. Hal ini disebabkan karena siswa telah merencanakan kegiatan pembelajarannya dengan sungguh-sungguh, merumuskan masalah dan hipotesis terkait soal sehingga jawaban yang ingin dicari ditemukan dan kreativitas siswa dapat terasah. Hal ini sejalan dengan Dayanti et al. (2021) bahwa flipbook

elektronik merupakan media pembelajaran inovatif yang dapat mengasah kreativitas siswa melalui penyajian materi yang interaktif dan menarik. Dengan fitur-fitur multimedia seperti animasi, gambar, video, dan audio, flipbook mampu menciptakan pengalaman belajar yang lebih dinamis dan menyenangkan (Sahara et al., 2024). Teknologi ini memungkinkan siswa untuk mengeksplorasi materi secara mandiri, menghubungkan konsep dengan visualisasi yang menarik, serta merangsang imajinasi mereka dalam memahami berbagai topik.

Table 4. Ouput of N-Gain Test of Skills Process

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_score	30	.21	1.00	.7012	.19746
Ngain_persen	30	21.05	100.00	70.1170	19.74634
Valid N (listwise)	30				

Picture 3. Ouput of N-Gain Test of Skills Process

Source: Researcher's Data, 2025

Additionally, students demonstrated a notable improvement in the process skills component, with an average N-Gain value of 0.7012, falling into the moderate range. This demonstrates how using the Think Pair Share approach with flipbook media enhances students' comprehension of the subject matter as well as their ability to use the method in science and natural science courses. The study as a whole demonstrates that this learning model is successful in raising the caliber of student learning outcomes in science and natural science materials, both in cognitive and skill aspects, despite differences in the accomplishment of these learning objectives.

3.2 Discussion

Research at SDN 2 Datar shows that combining Flipbook media with the Think Pair Share (TPS) learning approach can improve the learning outcomes of fourth grade students in science subjects. This approach encourages student involvement through discussion and collaboration, so that learning becomes more interactive and meaningful. The results of observations at SDN 2 Datar show that traditional learning methods, which are mostly lectures, assignments, and questions and answers, have so far resulted in monotonous learning experiences, resulting in low student engagement and learning achievement. In line with this, Ardianti and Wanabuliandari (2023) highlighted the importance of teachers utilizing technology effectively in distance learning, which also applies to classroom learning. When students are given dynamic learning models and media, such as TPS and Flipbook, their ability to understand and critically analyze natural phenomena in science subjects increases, thus overcoming the minimal use of diverse learning methods and media observed at SDN 2 Datar.

Flipbook technology, which gives students the ability to access resources independently and repeatedly, supports this improvement by enhancing their comprehension of the subject matter being taught (Astiti et al., 2021). Similarly, (Rachmawati and Erwin., 2022) study found that using the TPS learning paradigm improved student learning results in science classes. The use of the TPS learning model has been demonstrated to improve student learning results, which is consistent with

the research opinion of (Sholichah et al., 2022). This is demonstrated by the rise in increasingly engaged student learning activities and the notable improvement in learning outcomes.

The using of flipbook media has been shown to enhance fourth-grade SDN 2 Datar pupils' learning results, particularly in the cognitive domain as measured by six metrics:

a. Remembering: The percentage increased from 71.25% (pretest) to 94.58% (posttest) with an N-Gain of 0.81 (high category). Students can more easily review the content and improve their memory with flipbooks.
b. Understanding: Increased from 67.08% to 88.75% with an N-Gain of 0.66 (moderate category). Practical activities such as experiments on the greenhouse effect help students understand concepts more deeply.
c. Applying: Increased from 65.83% to 90.42% percentage in the top category with an N-Gain of 0.72. Students apply the theory in concrete experiments.
d. Analyzing: Increased from 47.50% to 98.33% with an N-Gain of 0.97 (high category). Discussion based on the Think Pair Share model increases students' self-confidence and understanding.
e. Evaluating: Increased from 27.50% to 74.17% with an N-Gain of 0.64 (moderate category). Students can critically evaluate the results of observations and discussions.
f. Creating: Increased from 31.67% to 80.00% with an N-Gain of 0.71 (high category). Interactive flipbooks encourage students' creativity in designing and completing assignments.

This is in line with (Dayanti et al., 2021) that electronic flipbooks are an innovative learning medium that can hone students' creativity through interactive and interesting presentation of materials. With multimedia features such as animation, images, videos, and audio, flipbsooks are able to create a more dynamic and enjoyable learning experience (Sahara et al., 2024). This technology allows students to explore materials independently, connect concepts with interesting visualizations, and stimulate their imagination in understanding various topics.

Supported by previous research by (Yulaika et al., 2020) showed that the use of flipbook-based teaching materials was considered much more effective and practical because it allowed students to access learning materials anytime and anywhere. In addition, speaking skills are very important to train students' mentality to dare to communicate ideas, concepts, and thoughts. In line with (Lusidawaty et al., 2020) stated that speaking skills are the ability to communicate ideas, concepts, thoughts, and feelings and express something in the form of expressions that make it easier for students to speak well. By expressing these skills, students have a greater chance of success.

Flipbook media that can be accessed online makes it easier for students to repeat material, strengthen memory, and support understanding through interactive visualization. In addition, practical and observation activities improve application and analysis skills (Ikromah et al., 2022). In addition to cognitive achievement, students' speaking skills also showed an increase, with the lowest score before treatment being 29 and increasing to 62 with an average score of 0.7012.

Students learn how to interact with classmates, speak clearly, and boldly express their views through group discussions in TPS. This supports the findings of (Munir et al., 2023), who claimed that TPS fosters student collaboration and aids in the development of critical thinking abilities and self-assurance. Therefore, using the TPS learning model with flipbook media enhances students' social skills in addition to their cognitive learning outcomes.

4. Conclusion

According to the study's findings, using the Think Pair Share learning approach with flipbook media can greatly enhance students' learning outcomes. This enhancement demonstrates that Think Pair Share, with the help of flipbook media, is successful in raising student learning outcomes through motivational techniques, engaging visuals, and active engagement. In addition to continuing to innovate with technology-based media, teachers should be able to use this model or comparable advances to produce engaging and interactive learning. To enhance the quality of education, schools must promote the use of technology-based learning resources like flipbooks by providing technology infrastructure and teacher training. It is recommended that future researchers broaden their research to include different levels of individuals and investigate the efficacy of additional technology-based learning materials and their effects on social skills, 21st century abilities, or motivational factors.

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