

IMPLEMENTATION OF THE THINK PAIR SHARE MODEL ASSISTED BY CANVA VIDEO ON THE TOPIC OF SALT HYDROLYSIS FOR THE LEARNING OUTCOMES OF 11TH GRADE SCIENCE STUDENTS

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Abstract. Research has carried to implement the Think Pair Share (TPS) model with the help of Canva videos in teaching about salt hydrolysis for 11th-grade students at SMAN 10 Banjarmasin. This study aims to compare the learning outcomes between the implementation of the Think Pair Share model with Canva video assistance and the Discovery Learning model on the focus of salt hydrolysis. This research employed a quantitative method with a quasi-experimental design using the pretest-posttest nonequivalent control group design. The research participants formed students from SMAN 10 Banjarmasin, with XI MIPA 2 class as the experimental group and XI MIPA 3 class as the control group. The teaching model considered the independent variable, while the learning outcomes were the dependent variable. Data collected through tests and non-tests also were analyzed using descriptive and inferential analysis techniques. The research results showed that there occurred to be a difference in learning outcomes in the knowledge domain between the students in the experimental group with an achievement percentage of 96.77% and the students in the control group with an achievement percentage of 80.65%. There was also a difference in learning outcomes in the skills domain, with the experimental group obtaining a score of 3.42 and the control group acquiring a score of 3.21. Meanwhile, the learning outcomes in the attitude domain showed a score of 3.42 for the experimental group and an score of 3.44 for the control group. Thus, it can resolved that there is a difference in the learning outcomes of students who use the Think Pair Share model with Canva video assistance compared to the Discovery Learning model on the focus of salt hydrolysis.

Keywords: canva video, learning outcomes, salt hydrolysis, think pair share

INTRODUCTION

Learning outcomes are the achievements attained by someone or a student after going through the learning process (Febryananda & Rosy, 2019). The balance of learning outcomes reflects the result of an optimal learning process, supported by various factors. These outcomes cannot be immediately felt but require maximum collaboration from all elements involved in the teaching and learning process (Djamaluddin & Wardana, 2019). In the context of 21st-century learning, learning outcomes are very important because they focus on the development of critical thinking skills, problem-solving, collaboration, and creativity. These skills are needed to prepare students to face real-world challenges and improve their competitiveness in the era of globalization (Mulyono & Ampo, 2021). Additionally, good learning outcomes reflect students' ability to apply knowledge in practical situations, which is one of the main goals of 21st-century education (Mardhiyah et al., 2021).

Based on observations in one of the high schools in Banjarmasin, it was found that the majority of the chemistry learning process in class XI MIPA still

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predominantly relied on conventional learning models and often used the expository method. The use of the expository method by teachers when teaching resulted in less optimal learning outcomes. This is in line with the findings of Rohima *et al.*, (2021), where improper learning models cause students to become bored and disengaged, leading them not to understand the material being taught and to be less active in the learning process, which negatively affects their learning outcomes. Therefore, a more engaging chemistry teaching model is needed that can attract students' interest and help achieve the desired learning objectives, thus creating a more effective learning environment (Rahayu *et al.*, 2020).

In this study, the cooperative learning model Think-Pair-Share (TPS) was chosen because, unlike other learning models, this model involves studying or reviewing the material three times according to its stages, giving students time to think, respond, and help each other (Praditya & Haryana, 2020). The advantage of the TPS model is that it helps students develop their own potential while also fostering group potential, which ultimately improves students' learning outcomes in solving problems or answering questions (Agustina, 2021).

Unlike the classical method, where only one student is given the opportunity to share their results with the whole class, the TPS model allows every student to think independently first, then discuss with a partner, and finally share with the larger group. This model can be applied across all subjects and educational levels, providing opportunities for all students to participate and share with their classmates. The application of the TPS model makes students more willing to ask questions, compete to answer the teacher's questions, respond when called upon, collaborate according to instructions, and confidently express their opinions (Butar-Butar & Appulembang, 2023).

Observations show that the learning process only relied on learning media in the form of LKS (Student Worksheets). This limitation caused students to face difficulties in following the lessons and not to engage actively, as not all of them had LKS. As a result, their learning outcomes were low. One form of more interactive learning media is instructional videos (Rachmawati & Erwin, 2022).

An instructional video is a type of media in the form of a video used to assist students in achieving learning objectives (Ario & Asra, 2019). One widely used application for creating interactive learning media, including instructional videos, is Canva. The use of Canva as a learning media tool is effective in saving teachers' time in designing learning media and simplifying the explanation of learning material. The strength of Canva lies in its ability to present various elements such as text, video, animation, audio, images, graphics, and more, in accordance with the desired display. Additionally, the appealing appearance of Canva media helps students focus and understand lessons better (Hapsari & Zulherman, 2021).

The use of instructional videos is more beneficial because video presentations can encompass all the needs for obtaining information in the teaching and learning process. With the use of this video media, a more enjoyable learning atmosphere is created, which will motivate students and improve their learning outcomes. Video media also helps stimulate creative ideas from students (Rachmawati & Erwin, 2022). The use of videos in TPS clarifies students' understanding of chemistry concepts and supports deeper discussions. In the topic of salt hydrolysis, it helps students grasp difficult concepts and increases their involvement in the learning process. Integrating the TPS model with Canva videos in teaching salt hydrolysis can enrich students' learning experiences. Canva videos help

visualize the complex chemical processes involved in salt hydrolysis, while TPS supports understanding through reflection, discussion, and idea sharing.

In a previous study (Rachmawati & Erwin, 2022), the effect of the TPS model on elementary school learning outcomes was investigated. Based on the description above, this study aims to compare the learning outcomes of high school students using the Think-Pair-Share model assisted by Canva videos with those using the Discovery Learning model in the topic of salt hydrolysis.

RESEARCH METHOD

This research design is an experimental study using a non-equivalent control group design. The research mechanism can be seen in Table 1.

Table 1. Non-equivalent control group design

Group	Pretest	Treatment	Posttest
A	O ₁	X ₁	O ₂
B	O ₃	X ₂	O ₄

(Note: A = experimental class, B = control class, O₁ = experimental pretest, O₂ = experimental posttest, O₃ = control pretest, O₄ = control posttest, X₁ = Discovery Learning model, X₂ = TPS model)

(Arikunto, 2014)

This design involves an experimental group and a control group, which are not selected randomly. There are two classes in this study, namely the experimental and control classes. In both classes, students are given a pretest to assess their initial abilities before the learning process begins. After receiving the treatment at the end of the learning process, students from both groups are given a posttest to determine their learning achievement after the treatment.

This research was conducted at SMAN 10 Banjarmasin. The sampling was done using purposive sampling. The timing of the salt hydrolysis material lesson at SMA Negeri 10 Banjarmasin was used as a consideration in selecting the sample. Two classes from the population were selected as the sample, with class XI MIPA 2 as the experimental class, which received treatment using the Think-Pair-Share model assisted by Canva videos, and class XI MIPA 3 as the control class, which received treatment using the Discovery Learning model.

The research instrument used in this study was an 8-item multiple-choice test. Data collection techniques were carried out using two methods: test and non-test techniques. The test technique was used to assess the students' knowledge, which was measured through the 8 multiple-choice items given at the beginning (pretest) and at the end (posttest) of the learning process. The non-test technique consisted of a response questionnaire with 10 statements and a student observation sheet. Data analysis techniques used in this study included descriptive and inferential analysis.

The analysis technique to analyze the knowledge test results was quantitative descriptive analysis. The analysis of students' knowledge learning outcomes on salt hydrolysis material was first analyzed by comparing the average scores of the experimental and control classes. The criteria used to categorize the level of student knowledge learning outcomes are presented in Table 2.

Table 2. Knowledge learning outcomes categories

Knowledge Score	Category
≥ 93	Very good
84 – 92	Good
75 – 83	Fair
66 – 74	Poor
< 66	Very poor

(Putri et al., 2019)

The technique used to analyze the learning outcomes in the skills domain was qualitative descriptive analysis, which aimed to assess the students' skills during the learning process, observed through observation with an assessment rubric. The following are the criteria for evaluating students' skills learning outcomes presented in Table 3.

Table 3. Skills learning outcomes categories

Skill Score	Category
4,21 – 5,00	Very good
3,41 – 4,20	Good
2,61 – 3,40	Fair
1,81 – 2,60	Poor
1,00 – 1,80	Very poor

(Widoyoko, 2018)

The technique used to analyze the attitude learning outcomes was also qualitative descriptive analysis. The analysis of students' attitudes aimed to assess the students' behavior during the learning process, observed through an observation sheet. The following are the criteria for evaluating students' attitude learning outcomes presented in Table 4.

Table 4. Attitude learning outcomes categories

Attitude Score	Category
4,21 – 5,00	Very good
3,41 – 4,20	Good
2,61 – 3,40	Fair
1,81 – 2,60	Poor
1,00 – 1,80	Very poor

(Widoyoko, 2018)

The N-gain method is used to address potential research bias caused by differences in pretest scores between the experimental and control groups. Furthermore, the N-gain is also used to evaluate the improvement in students' cognitive learning outcomes.

Table 5. Normalized gain category

N-gain	Category
$(g) < 0,3$	Low
$0,3 < (g) < 0,7$	Medium
$(g) > 0,7$	High

(Isdayanti et al., 2022)

To evaluate whether there is a significant difference, inferential analysis is performed to test the hypothesis. Before performing the hypothesis test, data from the

pretest and posttest were tested for normality and homogeneity. After normality and homogeneity tests were performed, hypothesis testing was conducted using a t-test (independent, non-paired). The goal of this test is to compare the improvement between the experimental and control groups. The following formula is used for the t-test:

$$t. = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{SD_1^2}{N_1 - 1} + \frac{SD_2^2}{N_2 - 1}}}$$

Information:

t = t-test for mean comparison

$\bar{X}_1$ = Mean of sample group 1 (experimental group)

$\bar{X}_2$ = Mean of sample group 2 (control group)

SD_1^2 = Variance of sample group 1

SD_2^2 = Variance of sample group 2

N_1 = Number of individuals in sample group 1

N_2 = Number of individuals in sample group 2

RESEARCH RESULTS AND DISCUSSION

Knowledge Learning Outcomes

The knowledge learning outcomes of the students were assessed using an instrument with 8 multiple-choice questions. The learning outcomes assessment was conducted twice: once before the treatment (pre-test) and once after the treatment (post-test) in both the control and experimental groups. The learning outcomes assessment in this study was conducted in both the experimental and control groups, both before and after the treatment. Thus, there are two descriptive comparison data, based on the tests (pre-test and post-test) and based on the groups (control and experimental). Below is a recap of the knowledge learning outcomes of the students, processed based on the average learning outcomes, as presented in Figure 1.

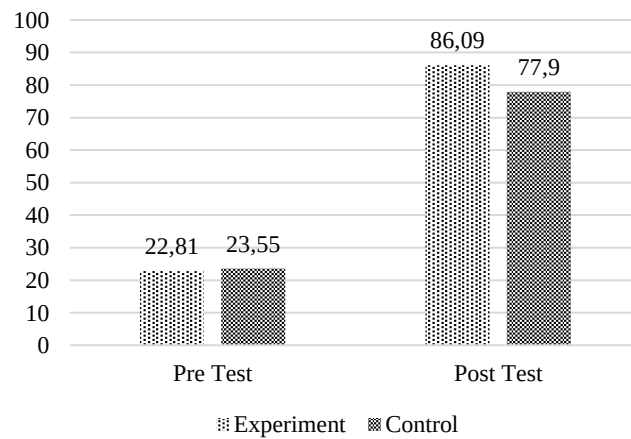


Figure 1. Recap of knowledge learning outcomes

Figure 1 shows that at the pre-test stage (before the treatment), the average knowledge learning outcomes of the control group and the experimental group were very similar: 23.55 for the control group and 22.81 for the experimental group. This is in line with the research by Mazidah *et al.*, (2021), which found that before the

treatment, the learning outcomes were not significantly different, indicating that both groups had similar initial abilities regarding the material being studied.

Based on the post-test results (after the treatment), there was a significant difference in the learning outcomes between the control and experimental groups. The average score for the control group was 77.90, while the experimental group scored 86.09. Additionally, at the post-test stage, 25 out of 31 students in the control group (80.65%) met the completion standard, whereas 30 out of 32 students in the experimental group (96.77%) met the completion standard. This indicates that the implementation of the Think-Pair-Share (TPS) model with the help of Canva videos had a positive effect on the knowledge learning outcomes of the students, with the experimental group showing a higher completion rate than the control group.

The difference in the knowledge learning outcomes is attributed to the use of the TPS learning model in the experimental group. This finding is consistent with the research by Suhardi (2018)), which stated that the TPS learning model can improve student learning outcomes. Setiawan et al., (2020) also indicated that the application of the TPS model had a positive impact on the learning process, resulting in improved learning outcomes. One of the factors is that students are given more time to think and respond. Sukelasmini (2019) mentioned that the TPS model is effective in improving student learning outcomes. Lubis et al., (2019) further explained that the TPS model has a significant impact on student activities and learning outcomes.

The analysis of student learning outcomes was also conducted by calculating the N-gain for each group to determine the improvement categories of the students' learning outcomes.

Table 6. N-Gain of students' knowledge learning outcomes

Category	Control	Experimental
High	16	28
Medium	15	4
Low	0	0
N-Gain	0,71	0,81

Based on Table 6, it can be seen that the N-Gain value for the experimental group (0.81) is higher than that of the control group (0.71), indicating that the improvement in the experimental group's learning outcomes is higher than that of the control group. Based on this data, it can be concluded that the implementation of the Think-Pair-Share model with the help of Canva videos had an effect on the students' knowledge learning outcomes. This is consistent with the research by Maufiroh & Pratama (2024), which found that students perform better in problem-solving using the TPS model compared to other models.

Further data processing was done by calculating the students' understanding levels based on the indicators or question numbers, as presented in Table 7.

Table 7. Distribution of students' understanding levels based on question indicators

Category	Control		Experimental	
	Pretest	Posttest	Pretest	Posttest
Very good	0	1	0	2
Good	0	2	0	5
Fair	0	4	0	1
Poor	0	1	0	0
Very poor	8	0	8	0
Total	8	8	8	8

Based on Table 7, it can be seen that at the pre-test stage, all the questions in both the control and experimental groups were in the "Very Poor" understanding level category. However, at the post-test stage, there was a distribution difference between the control and experimental groups. In the control group, the majority of the questions were categorized as "Fair" (4 questions), while in the experimental group, most questions were categorized as "Good" (5 questions). This descriptive statistical distribution shows that the implementation of the Think-Pair-Share model with the help of Canva videos had an impact on students' understanding in solving the questions.

The N-gain for each question indicator is presented in Table 8.

Table 8. N-Gain of question indicators

Question	Control		Experimental	
	N-Gain	Category	N-Gain	Category
1	0,79	High	0,90	High
2	0,68	Medium	0,83	High
3	0,71	High	0,83	High
4	0,89	High	0,95	High
5	0,75	High	0,77	High
6	0,70	Medium	0,83	High
7	0,71	High	0,81	High
8	0,67	Medium	0,79	High

Based on Table 8, it shows that the improvement in students' understanding in the experimental group was better compared to the control group when evaluated based on each question (indicator). In the experimental group, all the questions were in the "High" N-Gain category, with the highest improvement seen in question 4 (N-Gain = 0.90) and the lowest improvement seen in question 5 (N-Gain = 0.77). In the control group, 7 questions were in the "High" category, and 3 were in the "Medium" category, with the highest improvement in question 4 (N-Gain = 0.89) and the lowest in question 8 (N-Gain = 0.67). These results are consistent with the study by Intan *et al.*, (2023), which found that the N-Gain of the TPS model was in the high category, indicating that it is very effective in learning.

Further data processing was carried out to calculate the level of understanding of the students based on the indicators or question numbers, which are presented in Table 9.

Table 9. Distribution of students' understanding level based on question indicators

Category	Control		Experimental	
	Pretest	Posttest	Pretest	Posttest
Very good	0	1	0	2
Good	0	2	0	5
Fair	0	4	0	1
Poor	0	1	0	0
Very poor	8	0	8	0
Total	8	8	8	8

Table 9 shows that at the pretest stage, all questions in both control and experimental groups were at the "Not Good" understanding level. However, after the posttest, there was a statistical difference in the distribution between the control group and the experimental group. In the control group, the understanding level was mostly

in the "Fair" category, with 4 questions, while in the experimental group, it was mostly in the "Good" category, with 5 questions. The descriptive statistical analysis of the questions/indicators indicates that the implementation of the Think-Pair-Share (TPS) model assisted by Canva videos positively impacted the students' understanding in solving the given problems.

The TPS learning model is categorized as a group learning model, where students are divided into groups of at least two people and engage in group discussions. Additionally, the TPS model provides opportunities for students to interact and collaborate actively in the learning process. Kartini (2019) stated that the TPS model involves students working in pairs with classmates to achieve a common goal. This learning model aims to increase student interactivity and provides them with opportunities to interact and learn together in small learning groups.

The use of Canva video in the experimental group also helped students enhance their thinking and solve problems in the Student Worksheet (LKPD). The Canva videos used in this research were designed using the Canva application, an online design tool that supports various learning activities. The Canva application allows the creation of various learning materials with flexibility, accessible anytime and anywhere (Fatihah & Ruhiat, 2023).

The use of the discovery learning model in the control group and the TPS model in the experimental group was chosen based on the characteristics of students in each group. The experimental group was more suitable for using the discovery learning model because the students in the control group were better suited for group discussions in smaller groups and were more comfortable solving problems collaboratively. Meanwhile, the experimental group was less engaged in exploring their ideas and needed a structured approach, making TPS a better fit for them.

The results of this research indicate that the TPS model is more effective than the discovery learning model. This is because discovery learning requires students to understand frameworks and principles for acquiring knowledge, so educators need to ensure that students are ready before implementing this model. This requires better preparation from both students and teachers (Marisya & Sukma, 2020). On the other hand, in the TPS model, students' understanding is already developed during the "Think" and "Pair" stages. Furthermore, in discovery learning, not all students can be facilitated personally during the learning process, as grouping may not always be effective. Meanwhile, the TPS model facilitates small groups in discussions, which provides better engagement for all students (Journal TPS).

The high scores in the experimental group were also attributed to the TPS model, which accommodates various student learning styles in the class, including reading and writing, visual, audio-visual, and kinesthetic styles (Erawati & Ramadhan, 2021). The simple yet effective steps in the TPS learning process help avoid mistakes within groups. These steps include asking students to think about a topic, pair up to discuss it, and then share ideas with the whole class. The success of the TPS method lies in students' ability to balance individual thinking as they have enough time to reflect. Additionally, this method improves students' accountability because they actively participate in small group discussions and share their thoughts with the class.

Skills Learning Outcomes

The students' skills learning outcomes were assessed using an observation sheet with specific aspects. The skills learning outcomes are presented in Figure 2.

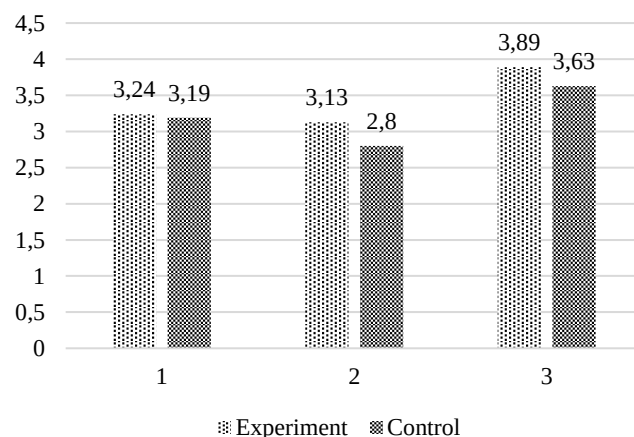


Figure 2. Skills learning outcomes

In aspect 1, which refers to the skill of preparing a report or Student Work Sheet (LKPD), the experimental group scored 3.24, higher than the control group, which scored 3.19. This is because in the experimental group, students were more responsible and consistently completed the LKPD because it was based on prior knowledge and supplemented with results from the pair discussion stage. This result also proves that revisiting learning materials can enhance learning skills (Walidah *et al.*, 2020).

The second aspect refers to the clarity of presentations or the delivery of discussion results and observations. The average score for this aspect in the experimental group was higher than the control group, with 3.18 for the experimental group and 2.80 for the control group. This significant difference was caused by the discussion in the experimental group, which involved pairs of students, making it more exclusive and helping students to focus and take greater responsibility when presenting their discussion results. In contrast, in the control group, not every individual could present because only group representatives were involved. These results prove that different learning treatments affect the learning experiences of students (Djarwo, 2020).

The third aspect refers to the practical activities related to the LKPD. This aspect had the highest score in the skill domain compared to the other aspects. The score difference was caused by the fact that in the experimental group, the "think" stage helped students better understand the practical activities they would carry out (Agustina, 2021). This analysis shows that the implementation of the TPS model can improve the practical learning results of students.

Based on the analysis of the data in Figure 2, the average score for the learning skills of students in the experimental group was 3.42 (Good), which was higher than the control group score of 3.21 (Fairly Good). This difference occurred because of the difference in learning models used, where the experimental group used the TPS model, which encouraged students to be more active in discussions to solve the problems presented in the LKPD. In addition, the use of Canva videos in the

experimental group also helped students better understand the material and made the learning process more interactive (Rachmawati & Erwin, 2022).

Learning Outcomes in the Affective Domain

The data on learning outcomes in the affective domain was collected using the same observation sheet as the one used for the skills domain. The attitudes of students during each session were observed using the observation sheet. The average score for attitude learning in the control group was 3.44, with no significant difference compared to the experimental group, which scored 3.42. The learning outcomes were analyzed based on four aspects, and the results are visualized in Figure 3.

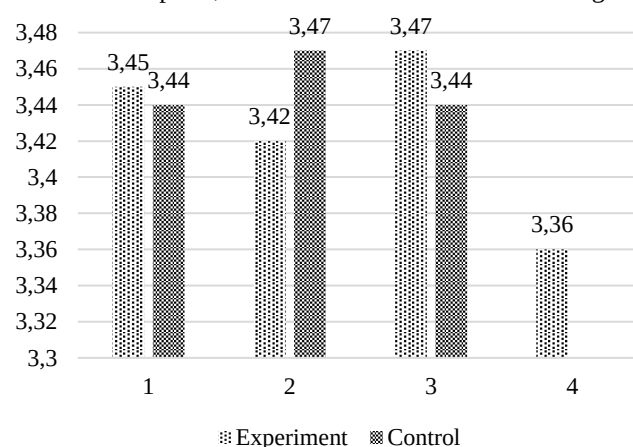


Figure 3. Learning outcomes in the affective domain

Based on the aspects observed, there was no significant difference between the control and experimental groups, with most students in the "Good" category. The data shows that the implementation of the Think-Pair-Share (TPS) model with the help of Canva videos did not significantly affect the learning outcomes in the affective domain. However, in the results of the skills domain, there was a difference, with the control group scoring more "Good" than the experimental group or showing equal results. This indicates that the implementation of the TPS model with the help of Canva videos did not have a significant effect on students' attitude learning outcomes.

This study also conducted an inferential statistical analysis using an independent t-test to determine the effect of the TPS model with the help of Canva videos on the learning outcomes of students. Before conducting the t-test, normality and homogeneity tests were performed, and the results showed that all data were normally distributed, homogeneous, and parametric. The results of the t-test can be seen in Table 10.

Table 10. T-test results of student learning outcomes

Learning Domain	T value	T table	df	Inf.	Conclusion
Knowledge (Pretest)	0,222			$T_{\text{value}} < T_{\text{table}}$	H0 Accepted
Knowledge (Posttest)	4,590	1,671	60	$T_{\text{value}} > T_{\text{table}}$	H0 Rejected
Skills	4,807			$T_{\text{value}} > T_{\text{table}}$	H0 Rejected
Attitude	0,316			$T_{\text{value}} < T_{\text{table}}$	H0 Accepted

Based on Table 10, the t-test results show that the implementation of the TPS model with Canva videos had a significant effect on students' knowledge and skills outcomes, but not on their attitude outcomes.

This finding aligns with previous studies by Chairani *et al.*, (2019) who found that the cooperative learning model of Think-Pair-Share (TPS) had an effect on student learning outcomes. The statistical analysis using the t-test showed that $T \text{ value} = 1.72$ compared to $T \text{ table} = 1.671$, with a significance level of $\alpha = 0.05$ and $df = 58$, where $T \text{ value} > T \text{ table}$, indicating a significant difference in the average knowledge scores between the control and experimental groups. Putri *et al.*, (2019) also showed that the TPS model had an effect on students' skills outcomes. This was because the TPS model included the "thinking" and "pairing" stages, during which students individually explored and generated ideas they already knew or newly acquired to solve the problems presented in the LKPD. This activity trained students' thinking abilities by generating relevant ideas and knowledge to solve the problems. The improved and balanced thinking abilities made students more critical and creative in finding accurate and appropriate problem solutions.

The TPS learning paradigm has a significant effect on various learning outcomes related to science and intellectual development (Ambaraputri *et al.*, 2020). Students who experienced conventional learning and those who applied the TPS cooperative learning model with visual media assistance showed significantly different learning outcomes (Julia Agustin *et al.*, 2019). Rahayuni & Afriyanti (2022) also showed improvements in cognitive, emotional, and psychomotor components of student learning outcomes. Additional research by Sari & Sutriyani (2023) also supports that the TPS model positively influences students' learning outcomes. According to the research conducted by several scholars, the cooperative learning model Think-Pair-Share helps elementary school students learn science more effectively and improve their learning outcomes.

Student Response

The students' response to the implementation of the TPS model with the help of Canva videos on the topic of salt hydrolysis was assessed using a questionnaire consisting of 10 statements, which included both positive and negative statements, given to the students at the end of the lesson.

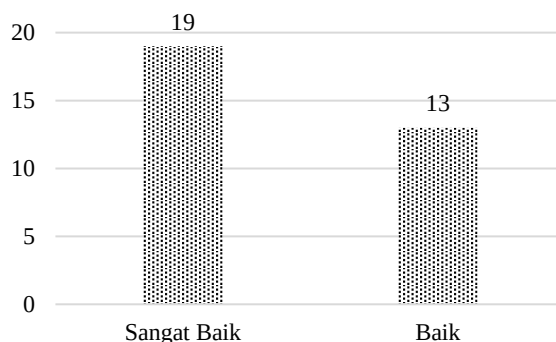


Figure 4. Student response

Figure 4 shows the results of the students' responses to the implementation of the Think-Pair-Share (TPS) model with the help of Canva videos, which can be

summarized as positive. The majority of students, 19 individuals, provided responses in the "very good" category, while 13 students responded in the "good" category. There were no responses in the "less good" category. This result suggests that the activities conducted using the Think-Pair-Share (TPS) model with the help of Canva videos received a positive response from the students. Overall, the average response of students to the implementation of the Think-Pair-Share (TPS) model with the help of Canva videos based on the statements was 81.56%, with the category of "very good" (Rachmawati & Erwin, 2022).

CONCLUSION

The results of this study conclude that there is a difference in the learning outcomes of students who used the Think-Pair-Share learning model with the help of Canva videos compared to those who used the Discovery Learning model on the topic of Salt Hydrolysis in class XI MIPA at SMA Negeri 10 Banjarmasin. The difference in learning outcomes was observed in the domains of knowledge, skills, and attitudes. The knowledge learning outcome in the experimental group reached a completion rate of 96.77%, while the control group reached 80.65%. The skill learning outcome in the experimental group was 3.42, while the control group scored 3.21. Furthermore, the attitude learning outcome in the experimental group was 3.42, while the control group scored 3.44. Additionally, students gave very good responses after learning using the Think-Pair-Share (TPS) model with the help of Canva videos on the topic of Salt Hydrolysis in class XI MIPA at SMA Negeri 10 Banjarmasin.

Based on the results of this study, further observations should be conducted to determine the extent to which the Think-Pair-Share model impacts learning outcomes with optimal time management so that lessons can be implemented efficiently and effectively for other subjects. Some modifications should also be considered to improve the quality of future research.

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