Multidisciplinary Output Research For Actual and International Issue (MORFAI Journal) ISSN (e): 2808-6635
Volumes 6 No. 1 (2025)

THE EFFECT OF THE JIGSAW TYPE COOPERATIVE LEARNING MODEL ON IMPROVING STUDENTS' AFFECTIVE LEARNING OUTCOMES HKBP PRIVATE VOCATIONAL SCHOOL PEMATANGSIANTAR

Bangun Munthe[1]*, Imelda Butarbutar[2], Justinos Ray Nainggolan[3], Josua Manurung[4], Yuliana Simbolon[5].
Program Studi Pendidikan Agama Kristen, Universitas HKBP Nommensen, Medan, Indonesia
E-mail: bangunmunthe@uhn.ac.id

Received	: 01 October 2025	Published	: 23 December 2025
Revised	: 10 October 2025	DOI	: https://doi.org/10.54443/morfai.v6i1.4793
Accepted	: 15 November 2025	Publish Link	: https://radjapublika.com/index.php/MORFAI/article/view/4793

Abstract

This study aims to determine whether there is (1) an increase in student learning outcomes using the jigsaw cooperative learning model. The study was conducted in two cycles with each cycle consisting of planning, action implementation, observation and reflection. The subjects of this study were 20 students of class XII of SMK Swadaya HKBP Pematangsiantar in the 2025/2026 academic year. The data sources used were informants, places or locations, events, documents or archives. Data collection techniques were carried out by observation, interviews, tests, questionnaires and documentation. Data validity used source triangulation techniques. Data analysis used qualitative descriptive analysis techniques. The results of the study showed that the religious learning outcomes of class XII students of SMK Swadaya HKBP Pematangsiantar experienced an increase after the implementation of the Jigsaw cooperative learning model. The method used in this study is an experiment, with a one group pretest-posttest design used to determine the effect of a treatment on the research subjects. The population of this study was class XII at SMK Swasta HKBP Pematangsiantar, with samples of class XII-TKJ and XII-KKY. The research data were obtained using a multiple-choice instrument of 20 questions and a pretest was conducted before learning and a posttest after learning. From the results of the study, an average pretest of 64.15 and a posttest of 92.5 was obtained. From the results of the hypothesis test, t_count > t_table at a significance level of 5% or 0.05, namely (4.49 > 1.70). Based on the results of the data analysis obtained, it can be concluded that learning with the jigsaw type cooperative learning model can improve student learning outcomes as seen from the increase in pretest and posttest scores.

Keywords:cooperative learning model; Jigsaw; affective learning outcomes.

INTRODUCTION

Vocational education in vocational schools focuses not only on cognitive and psychomotor aspects, but also on affective aspects related to students' attitudes, responsibility, cooperation, honesty, and discipline. However, in reality, in vocational schools, it is often found that students' affective domains are not optimally developed: students are less active in discussions, less responsible for assignments, and cooperation between friends is still low. Conventional learning models that are one-way (the teacher explains, students listen) tend not to facilitate student interaction in groups. Therefore, alternative learning models are needed that can increase student activity and strengthen their affective aspects.

One widely used model is the Jigsaw cooperative learning model, where students are divided into small groups, each member studying a section of the material and then teaching it to the members of their original group. Various studies have shown that the Jigsaw model is effective in improving students' cognitive and affective learning outcomes. For example, experimental research in the affective domain shows an increase in students' affective aspects after implementing Jigsaw. Based on that, this study was conducted at the HKBP Pematangsiantar Private Vocational School to examine the effect of implementing the Jigsaw cooperative learning model on students' affective learning outcomes. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have spiritual religious strength, self-control, personality, intelligence, noble morals, and the skills needed by themselves, society, the nation and the state (Law of the Republic of Indonesia, 2016).

Ice Mangombo and Richard Lomboan (Gulo, 2024) state that teachers as educators will be successful if they are able to integrate moral and spiritual values into their daily lives. Educators must possess maturity of faith and continually develop their personalities. Teachers, as learning developers, are required to adapt content, or teaching and learning interactions, as well as regular face-to-face learning, to online learning systems. Throughout the history of education, teachers have been role models for students. Therefore, teachers must have a strategy or method of teaching. In the New Testament, teaching can be understood from the ministry of Jesus Christ, and because Christian religious education cannot be separated from Jesus Christ, who is the teacher sent by God to all creation. As a teacher, Jesus was given the title by the Jews, namely Rabbi or Great Teacher (John 3:2, 3:13-14).

Teachers are professional educators with the task of educating, teaching, guiding, training, and assessing students in early childhood education, formal education, primary education, and secondary education (Law Number 14 of 2005 concerning Teachers and Lecturers, 2005). Learning is conducted using media, including print media (modules). Online learning can lead to tedious learning, and students who experience boredom will experience a decline in their affective learning outcomes. Therefore, motivation is needed to motivate students to be enthusiastic about learning and achieve learning outcomes. One of the driving factors that motivate students to be enthusiastic in learning activities is the teacher. There are factors that usually arise from students, teachers, media, and effective and efficient learning models. The role of education is crucial because it plays a role in organizing and managing the classroom atmosphere. We will share strategies that teachers can implement to provide opportunities for students to learn actively.

LITERATURE REVIEW

A. Jigsaw type cooperative learning

According to Joyce & Weil (in Duraisy, 2019), a learning model is a plan or pattern that can be used to shape a curriculum (long-term learning plan), design learning materials, and guide classroom and other learning. Learning models can be used as a choice pattern, meaning teachers can choose the appropriate and efficient learning model to achieve their educational goals. The jigsaw cooperative learning model is a cooperative model that emphasizes student group work in small groups. According to (Lie, 2011), the jigsaw cooperative learning model is a cooperative learning model where students learn in small groups of four to six people in a heterogeneous manner and students learn to behave positively and take responsibility independently.

(Pertiwi & Sudrajat, 2022) explains that Jigsaw type cooperative learning is a type of cooperative learning that consists of several members in one group who are responsible for mastering part of the learning material and are able to teach the material to other members in their group. The Jigsaw learning model is an attractive strategy to use when the material to be learned can be divided into several parts and the material doesn't require a specific order of presentation. The advantage of this strategy is that it can involve all students in learning and simultaneously teach others. Based on the understanding above, it can be concluded that through effective learning interactions, students become more motivated, confident, able to use higher-order thinking strategies, and able to build interpersonal relationships. The jigsaw cooperative learning model allows all students to master the material at a relatively similar or parallel level. According to (Kurniasih Imas & Berlin, 2015) several indicators regarding the influence of the jigsaw type cooperative learning model (Variable X) are:

1. Preparation

Teaching preparation is essentially short-term planning to anticipate or project what will be done. Therefore, teaching preparation is an effort to predict the actions that will be taken during learning activities, particularly those related to competency development. To develop teaching readiness, teachers must first master the theoretical and practical elements of teaching preparation. The ability to prepare for teaching is a necessary first step for teachers and serves as the culmination of all theoretical knowledge, basic skills, and a deep understanding of the learning objectives and learning situations. In preparing for learning, it is important to clearly define the core competencies students will master, what they must do, what they will learn, how they will learn it, and how teachers will know if students have mastered certain competencies. These aspects are key elements that must be present in every teaching preparation as a guide for teachers in implementing learning and developing student competencies. There are several principles that must be considered in developing teaching readiness, including (Maryani & Sintara, 2021):

1. The competencies formulated in teaching preparation must be clear, the more concrete the competencies, the easier they are to observe, and the more appropriate the activities that must be carried out to form these competencies.

2. Teaching preparation must be simple and flexible and can be implemented in learning activities and the formation of student competencies.
3. Activities that are designed and developed in preparation for teaching must support and be in accordance with the established basic competencies.
4. The teaching preparation developed must be complete and comprehensive and have clear objectives.
5. There must be coordination between program implementing components in schools, especially if learning is carried out in teams (team teaching) or if students move classes.

Professional teachers must be able to develop good, logical, and systematic teaching preparation. Besides being essential for the implementation of learning, teaching preparation is a form of professional accountability. Teaching preparation will help teachers develop standard materials and anticipate students and potential learning issues (Mulyasa, 2017). An educator must conceptualize a teaching plan. According to (Kumar, 2022), the teaching plan that teachers must prepare includes analyzing tasks, identifying training/learning needs, and writing learning objectives. This way, a teacher can anticipate the learning tasks that must be completed before selecting the resources needed to achieve the desired goals. The teacher's preparation or plan is a means or tool for new teaching activities that become meaningful after the teaching and learning process is implemented. Teachers, in all aspects, are crucial to the success of learning, because good teachers are those who can create learning motivation and maintain harmonious relationships with their students.

What teachers must prepare before teaching includes:

a. prepare the material to be taught (in accordance with the lesson plan)
b. prepare teaching aids to be used if needed
c. prepare questions and directions to stimulate students to actively learn
d. study the student's condition, understand the student's weaknesses and strengths
e. studying students' prior knowledge.

2. The teacher divides students into home and expert groups.

Slavin (2022) states that cooperative learning is a learning model in which students learn and work collaboratively in small groups of four to six people, with a heterogeneous group structure. Cooperative learning allows students to actively participate in the learning process, thus positively impacting the quality of interaction and communication. In detail, the characteristics of cooperative learning are: (1) the way students work in cooperative groups to complete learning materials; (2) groups are formed from students with high, medium, and low abilities; (3) whenever possible group members come from different races, cultures, ethnicities, genders and; (4) awards are more group-oriented than individual. In completing group assignments, each member works collaboratively and helps to understand the material, checks and corrects the work of friends and other activities, with the aim of achieving high learning outcomes. It is emphasized that students understand that the task is not complete if one of the group members has not mastered and understood the learning material. In addition to this, cooperative learning allows for higher quality communication and interaction between students in groups and between students between groups.

In cooperative learning, the teacher functions as a motivator, facilitator, and moderator. In cooperative learning, each student is placed in an equal role to achieve learning goals, mastery of the subject matter, and learning success, which are not seen as solely determined by the teacher but are a shared responsibility, thus encouraging the growth and development of a sense of cooperation and mutual need among students. After the teacher explains the general outline of the subject matter, students are then asked to study in their previously formed groups. In terms of academic ability, study groups typically consist of one person with high academic ability, two people with average ability, and one person from the lower academic ability group.

According to (Lie, 2011), there are several reasons why heterogeneous grouping is preferred, namely:

a. Heterogeneous groups provide opportunities to teach and support each other.
b. Groups enhance relations and interactions across races, religions, ethnicities and genders.
c. Heterogeneous groups facilitate classroom management because, with one highly academically skilled person, the teacher has one assistant for every three students. Through team learning, students are encouraged to exchange information and opinions, discuss problems together, compare their answers, and correct any inaccuracies (Sanjaya, 2022).

3. Conducting an Evaluation

Learning evaluation is crucial for determining the effectiveness of a learning system implemented by educators. If an educator fails to conduct evaluations, it's the same as failing to make progress in designing learning systems. According to (Suardipa & Primayana, 2020), evaluation is a specific method used to assess a learning process and outcomes. Evaluation is conducted on all components and simultaneously provides feedback for each component. Evaluation can be used to measure the graduation of students' abilities, providing symbolic markers that are reported to all parties. Evaluation is carried out comprehensively, objectively, cooperatively, and effectively, guided by learning objectives and materials. Teachers must evaluate test results and establish standards of success. For example, if all students have mastered the basic competencies, then the lesson can continue, provided the teacher provides remedial work for students who have not yet achieved the competencies. Evaluation can identify the basic competencies, materials, and individuals who have not yet achieved mastery (Andri Politon, 2022). It is crucial for an educator or teacher to conduct evaluations to determine whether the teaching and learning process is going well. Jesus was a teacher who provided correction with perfect steps. In correcting, Jesus had specific goals for which He would use them. The Teacher provided open correction in Jerusalem, when the Jews were misusing the place of worship for business (John 2:13-16).

According to Reece and Walker in (Ul Haq et al., 2024) there are several reasons why evaluation must be carried out, namely:

1. Strengthening learning activities
2. Testing students' understanding and abilities
3. Ensuring appropriate prerequisite knowledge
4. Supporting the implementation of learning activities
5. Motivating students
6. Providing feedback to students
7. Providing feedback for teachers
8. Maintaining quality standards
9. Achieving progress in learning processes and outcomes
10. Predicting future learning performance
11. Assessing the quality of learning

Every teacher is required to have the capacity to conduct appropriate evaluations so that the results obtained through these activities can provide a true picture of students' ability levels. Appropriate evaluations can measure student competencies or capabilities, determine which learning objectives have not been optimally achieved, formulate student rankings, provide teachers with information about the appropriateness of the learning strategies used, and plan procedures for improving lesson plans (Phafiandita et al., 2022).

B. Affective Learning Outcomes

Affective relates to how feelings arise in a person accompanying his attitude, which can be positive or negative towards the object of the attitude. If someone has a positive attitude towards the object of the attitude, then it also has a relationship with other positive values related to the object of the attitude, as well as negative attitudes. According to Gerungan, affective is an attitude of view or feeling, but this attitude is accompanied by a tendency to act in accordance with the object's attitude. Meanwhile, according to Campbell in (Houston et al., 2022), attitudes are a collection of consistent responses to social objects. According to Benjamin Bloom, learning outcomes are divided into three domains: cognitive (knowledge), affective (attitudes and values), and psychomotor (skills). The affective domain includes students' attitudes, interests, values, motivation, cooperation, and responsibility in learning. The affective aspect is very important in vocational learning because students are not only required to master technical competencies, but also to be able to act professionally, cooperate within a team, be responsible for work results and be disciplined.

C. Jigsaw Type Cooperative Learning Model

The Jigsaw cooperative learning model, introduced by Elliot Aronson, emphasizes dividing material into smaller parts. Students then work in "expert" groups and then return to their original groups to teach their peers. The advantages of this model include increased student participation, individual accountability within the group, student-to-student interaction, and an active learning process. Several studies have shown that the implementation of Jigsaw has a positive impact on students' cognitive learning outcomes. For example, research in elementary schools showed an increase in learning completion from 64% to 91%. In the affective domain, research combining Jigsaw with the

CTL approach demonstrated an impact on students' affective aspects. Thus, the Jigsaw learning model is not only relevant for the cognitive domain but also has the potential to improve students' affective domain.

D. Hypothesis

H_0: There is no influence of the application of the Jigsaw type cooperative learning model on students' affective learning outcomes.
H_1: There is an influence of the application of the Jigsaw type cooperative learning model on students' affective learning outcomes.

METHOD

A. Research Design

The research used a quasi-experimental method with a One-Group Pretest-Posttest design (one group) at HKBP Pematangsiantar Private Vocational School.

B. Population and Sample

Population: all class studentsXII-TKJ and XII-KKYat HKBP Private Vocational School Pematangsiantar. Sample: taken purposively as many as 20 students.

C. Instruments

The instruments used were affective learning outcome questionnaires (e.g., scales of attitude, responsibility, cooperation, and honesty) that had been tested for validity and reliability. In addition, observations of students' affective activities during the learning process were conducted.

D. Research Procedures

1. Pretest: students fill out an affective questionnaire before implementing the model.
2. Treatment: the teacher applies the Jigsaw type cooperative learning model for several meetings (for example 3–4 times).
    - Stage of division of original groups
    - The stage of distributing sub-materials to group members
    - Expert group discussion stage
    - The stage of returning to the original group to teach his friends
    - Original group presentation and reflection
3. Posttest: students completed the affective questionnaire after implementing the model.
4. Data analysis: Using a paired t-test to determine the difference between pretest and posttest scores. Next, calculate the effect size or percentage increase.

E. Data Analysis Techniques

- Normality test (e.g. Kolmogorov-Smirnov) to check the distribution of data.
- Paired samples t-test with a significance level of $\alpha = 0.05$.
- Calculating the percentage increase = $((\text{MeanPost} - \text{MeanPre})/\text{MeanPre}) \times 100\%$.

RESULTS AND DISCUSSION

A. Instrument Test Analysis

Instrument trials are conducted to determine the validity and reliability of an instrument before it is used for data collection. Only valid and reliable instruments will be used for research data collection. The instrument being trialed is a questionnaire.affective learning outcomes in the form of a questionnaire consisting of 20 questions.

1. Instrument Validity Analysis

Based on the results of the construction validity test using the product moment above, then fromThe 20 questionnaire questions that were tested in class XII at SMK Swasta HKBP Pematang Siantar showed 20 valid questions. The product moment price for N = 20 with a significance level of 5% was 0.444. Furthermore, the 20 valid questions were re-arranged to collect Student Learning Outcomes data. The analysis and results of the instrument validity analysis can be seen in Appendix 4 page .

2. Instrument Reliability Analysis

Results of instrument reliability analysisThe reliability coefficient for student learning outcomes was 0.756, which is in the high category.

B. Data description

The data description in this study provides an overview of the characteristics of the score distribution and research subjects for each subject studied. This study involved 40 respondents who were taking Christian Religious Education lessons atPrivate Vocational High School HKBP Pematang Siantar. The research subjects consisted of two classes, namely the control class and the experimental class. Class XII- KKY as the control class consisting of 20 students and class XII- TKJ as the experimental class consisting of 20 students. The experimental class is a class that receives treatment using the jigsaw type cooperative learning model while the control class uses conventional learning strategies. The data description in this study discusses Student Learning Outcomes in the Field of Christian Religious Studies. The data description presented in this study includes the average, variance, standard deviation. In addition to the data description, the data is also categorized into three groups, namely low, medium, and high student learning outcomes. The data description and learning outcome categories of each class, both the experimental class and the control class are explained as follows:

1. Student Learning Outcomes (Pretest)

The pretest learning outcomes were conducted to determine the initial condition of student learning outcomes before treatment was given to one of the groups. The data collected in the study consisted of two sets of data: the initial condition data of class XII-KKY as the control class and XII-TKJ as the experimental class. The pretest data were tested for differences (t-test) by two parties. After the calculation results were obtained, they were compared witht_{tabel}. If it is smaller than then it can be stated that there is no significant difference between the learning outcomes of students in the control class and the experimental class so that the research process can be continued.$t_{hitung} t_{tabel}$

a) Pretest learning outcomes of the control class

Based on the recapitulation of the pretest learning motivation of the control class (see attachment 8page, the results of descriptive statistical analysis of pretest learning motivation data for the control class were obtained with a class average of 30.75, a variance of 87.56, and a standard deviation of 9.35. The complete results of the descriptive data analysis can be seen in Appendix 8. The results of the data description are made into a frequency table so that it can be seen how much the distribution is according to the predetermined value interval. The formula, calculation, and frequency distribution table can be seen in Appendix 8.

Based on the recapitulationLearning outcomes of pretest data of student learning outcomes can be simplified into low, medium, and high category groups using categorization norms. The complete calculation of categorization norms can be seen in appendix 8 page.

b) pretest student learning outcomes in the experimental class

Based on the recapitulationThe results of the pretest learning of the experimental class (see appendix 9), obtained the results of descriptive statistical analysis of the pretest learning motivation data of the experimental class with a class average of 33.5, a variance of 77.03 and a standard deviation of 8.77. The complete results of the descriptive data analysis can be seen in appendix 9. The results of the data description are made into a frequency table so that it can be seen how much the distribution is according to the predetermined value interval.

2. Student Learning Outcomes (post test)

a) Post-test learning outcomes of the control class

Based on the recapitulation of the learning motivation of post-test students in the control class (see appendix 8), the results of the descriptive statistical analysis of the post-test learning motivation data for the control class were obtained with a class average of 4.5.5, variance of 2.30, and standard deviation of 1.51. The complete results of the descriptive data analysis can be seen in Appendix 8. The results of the data description are made into a frequency table so that it can be seen how much the distribution is according to the predetermined value interval.

b) Post-test learning outcomes of the experimental class

Based on the recapitulationThe post-test learning results of the experimental class (see appendix 9 page), obtained analysis results with an average of 47, a variance of 103.68 and a standard deviation of 10.18. The complete

results of the descriptive data analysis can be seen in appendix 9. The results of the data description are made into a frequency table so that it can be known how much the distribution is according to the predetermined value interval.

3. Comparison of Learning Outcomes of Control Class and Experimental Class

Based on the descriptions of the results of the data description analysisThe affective learning outcomes of the pretest and posttest of the experimental and control classes can be compared before and after the treatment between the same class and the control and experimental classes. To facilitate this comparison, the following table presents a comparison of the learning creativity of the Control and Experimental classes.

Table 2 comparison of learning motivation of control class and experimental class

Class	Average Pre Test Score	Post Test Average Score	Difference
Experiment	33.5	47	-13.5
Control	30.75	45.5	-14.75

C. Requirements Analysis Test

1. Normality Test

The normality test aims to determine whether the distribution of variables is normal or not. The normality test is carried out using chi square (X^2)with a significance level of 5%. The results of the chi-square calculation are then compared with the chi-square table so that from the results of the comparison it can be seen whether the data distribution is normally distributed or not. If the chi-square result (calculated is smaller than the chi-square (table), then the variable distribution data is declared normally distributed. The detailed results of the Normality analysis calculation can be seen in Appendix 10.X^2)X^2) The following table presents the results of the chi-square analysis calculations and the decision on data normality after comparing the results of the chi-square calculations with the chi-square table.

Table 3 Normality Test of Control and Experimental Classes

No	Treatment	Class	X_{hitung}	X_{tabel}	dk	Decision
1	Pre-Test	Experiment	-72.81	9.49	7	Normal
		Control	-92.25	11.07	8	Normal
2	Post Test	Experiment	-57,264	11.07	8	Normal
		Control	-9,731			

2. Homogeneity Test

The homogeneity test aims to determine whether the different groups tested have the same variance or not. The homogeneity test is carried out using the F test. The calculation resultsF_{hitung}then compared with the numerator dk and the mention dk with a significance level of 5%. The number and have the same number of 20. If the comparison result obtained is smaller than that, then the group that is to be tested differently (t test) is declared homogeneous.$n^2 n_1 n_1\ n_2 F_{hitung} F_{tabel}$

Based on the calculation results$F_{hitung}$for the pre-test group of the control and experimental classes of 1.136. This is then compared with the numerator dk of 20 () and the denominator dk of 20 (where is the number of students in each class. The value for the denominator and numerator dk is 2.16. The data of the control and experimental classes from the pre-test results are declared homogeneous because they are smaller than 1.136 < 2.16. for the post-test group of the control and experimental classes of 1.215. This is also compared with the value of 2.16 so that the data of the post-test group of the control and experimental classes are declared homogeneous because they are smaller than (1.215 < 2.16).$F_{hitung} F_{tabel} n_2 - 1 n_1 - 1) n F_{tabel} F_{hitung} F_{tabel} F_{hitung} F_{hitung} F_{tabel} F_{hitung} F_{tabel}$

D. Hypothesis Testing

1. Hypothesis

Based on the analysis requirements test, it shows that the distribution is normal and homogeneous, so the hypothesis test can be carried out. The hypothesis test was conducted using a comparative t-test of two independent samples and a one-tailed hypothesis test. The calculation resultst_{hitung}will be compared with the degrees of freedom (dk) = and a significance level of 5%. The hypothesis sentence is that the learning motivation of students who use the jigsaw type Cooperative Learning Model is higher than that of students who do not use the jigsaw type Cooperative Learning Model. The statistical formula for the hypothesis is:$t_{tabel} n - 1$

a. H_o= The learning outcomes of students who use the jigsaw type Cooperative Learning Model are lower or the same as those of students who do not use the jigsaw type Cooperative Learning Model.
b. H_a= The learning outcomes of students who use the jigsaw type Cooperative Learning Model are higher than those of students who do not use the jigsaw type Cooperative Learning Model.

2. Decision

If a comparison is obtainedt_{hitung}smaller than then it is accepted and if it is greater than then it is accepted. Detailed data calculations and analysis can be seen in appendix 12. Based on the results of the t-test calculation, it was obtained at 4.49 and at 1.70. The position of the can be visualized based on the image above, it can be seen that it falls in the acceptance area. Thus, it is rejected and accepted and it can be stated that the learning outcomes of students whose teaching and learning process uses the jigsaw type Cooperative Learning Model are higher than the learning outcomes of students who do not use the jigsaw type Cooperative Learning Model. The results of the different tests show that there is a significant difference between the learning outcomes of students in the Experimental class and the control class after being given treatment.$t_{tabel}H_o t_{hitung} t_{tabel}H_a t_{hitung} t_{tabel} t_{hitung}\ t_{tabel} t_{hitung}\ H_a H_o H_a$

DISCUSSION

In this discussion, it will be studied how the influence of the Cooperative Learning Model of the jigsaw strategy type in Christian Religious Education lessons on Improving Student Learning Outcomes of Class XII of SMK Swa HKBP Pematangsiantar with the number of samples studied as many as 40 people. The samples were taken from two classes, namely class XII-KKY as the Control class and class XII-TKJ as the Experimental class. Each class consists of 20 students. The experimental class is a class that receives treatment by learning using the Cooperative Learning Model of the jigsaw type in the learning process, while the control class uses a commonly used learning strategy, namely the conventional strategy in the form of lectures. The effect of treatment on Student Learning Outcomes of the Experimental and Control Classes is seen from the results of the comparison of class averages and different test analysis (t-test). based on the Learning Outcomes data shown in the analysis results that the Learning Outcomes of Students in the Experimental class are higher than the Learning Outcomes of Students in the Control class. This condition is indicated by the average value of the Experimental class being higher than the average of the Control class. The application of the Cooperative Learning Model of the jigsaw type in the learning process has contributed a lot to the high Student Learning Outcomes.

This is shown in the data description where the Experimental group had an average score of 80.5 and the Control group had an average score of 76.25. This shows that the average score of the Experimental group's Learning Outcomes was higher than the Control group by 4.25. This difference in Results is very visible in the aspect of student attention when participating in Christian Religious Education learning with the main material of faith and hope in the classroom. When learning began, students participated in conducive learning, the classroom atmosphere in the Experimental Class was arranged and designed in such a way with indicators that had been made by the researcher. The class that was given the treatment was the Experimental class. The researcher first encouraged and explained the Jigsaw Cooperative Learning Model. Students paid good attention and were enthusiastic in participating in the learning. The researcher paid attention to students through a question and answer approach between students related to the material being discussed. In the lesson being discussed, the teacher provided the relevance of the material to their needs. Furthermore, the researcher gave a sense of self-confidence to dare to express opinions and contribute to achieving the material to be achieved. After that, the teacher gave an assessment to students regarding their opinions regarding the lesson being discussed. At that time, the teacher also gave appreciation to students to provide satisfaction scores for student work results and student learning willingness. Students are given the same treatment without any other elements that influence their cognitive, affective and psychomotor abilities.Students were given the opportunity to nurture and develop their skills through fun competition. Meanwhile, in the control class, or the one without the treatment, their learning environment was difficult to direct. Students tended to be disruptive and even sleep in class. They were reluctant to ask questions and chose to remain silent, leaving teachers confused about whether students had understood the material. Teachers only assigned assignments and provided brief explanations and offered advice, often considering it a boring lecture.

CONCLUSION

Based on the research results, it can be concluded that the implementation of the Jigsaw cooperative learning model has a positive and significant impact on improving students' affective learning outcomes at HKBP

Pematangsiantar Private Vocational School. Therefore, this model is suitable as a learning strategy in vocational schools to strengthen students' affective domain.

1. The Jigsaw type cooperative learning model has a significant effect on improving the affective learning outcomes of students at HKBP Pematangsiantar Private Vocational School.
2. Students who learn with the Jigsaw model show better attitudes such as cooperation, responsibility, and tolerance compared to students who learn conventionally.
3. The Jigsaw model can be used as an alternative effective learning strategy to develop students' affective domain, especially at the vocational school level.

REFERENCES

Bible 2nd ed. (2024). Indonesian Bible Institute (LAI). Jakarta.

Andini, MFAB (2019). The effect of the jigsaw cooperative learning model on the mathematics learning outcomes of class VIII students of SMP Negeri 3 Tebing Tinggi, Meranti Islands Regency. Student Online Journal, 1(2), 65–79.

Andri Politon, V. (2022). Christian Religious Education teachers' strategies in preparing students for semester exams. Harati: Journal of Christian Education, 2(1), 58–72. https://doi.org/10.54170/harati.v2i1.103

Ansari, B.I., Junaidi, J., Maulina, S., Herman, H., Kamaruddin, I., Rahman, A., & Saputra, N. (2023). Blended-Learning Training and Evaluation: A Qualitative Study. Journal of Intercultural Communication, 23(4), 155–164. https://doi.org/10.36923/jicc.v23i4.201

Arikunto, S. (2014). Research procedures: A practical approach (14th edition). Rineka Cipta.

Aronson, C., Stephen, C., Sike, J., & Bline, M. (1978). The jigsaw classroom. Sage Publications.

Aslan. (2018). The meaning of curriculum in relation to learning theory on changes in student behavior. Journal of Inter-State Border Studies, Diplomacy and International Relations, 1(2), 56–65.

Boiliu, ER (2022). Analysis of Christian Religious Education on Emotional Intelligence in Improving Children's Learning Achievement. Luxnos Journal, 8(1), 1–10. https://doi.org/10.47304/jl.v8i1.175

Calkins, S. C., & Rivnay, J. (2021). The jigsaw design challenge: An inclusive learning activity to promote cooperative problem-solving. Journal of Effective Teaching in Higher Education, 4(3), 19–35.

Creswell, J. W. (2014). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). London.

Dimyati, & Mudjiono. (2009). Learning and teaching. Rineka Cipta.

Duraisy, BR (2019). Learning models (Joyce and Weil's four models). Edutech Rosy, 1–6.

Gulo, E. (2024). Christian Religious Education teachers' strategies in shaping students' character in the digital era. Journal of Catechesis and Pastoral Religious Education, 3(1), 13–25.

Hamalik, O. (2013). Teaching and learning process. Bumi Aksara.

Herman, H., Shara, AM, Silalahi, TF, Sherly, S., and Julyanthry, J. (2022). Teachers' Attitude Towards Minimum Competency Assessment at Sultan Agung Senior High School in Pematangsiantar, Indonesia. Journal of Curriculum and Teaching, 11(2), 01-14. DOI: https://doi.org/10.5430/jct.v11n2p1.

Houston, DM, Henderson, MB, & ... (2022). Public opinion, attitude stability, and education policy. Teachers College.

Iban, TG (2024). The influence of TikTok social media usage on the creativity of STMIK Widya Cipta Dharma students. Sebatik, 28(2), 1–6. https://doi.org/10.46984/sebatik.v28i2.0000

Johnson, D.W., & Johnson, R.T. (1994). Cooperative learning in the classroom. Association for Supervision and Curriculum.

Ministry of Education and Culture. (2016). Copy of Minister of Education and Culture Regulation Number 23 of 2016 concerning Educational Assessment Standards. 1–12.

Kumar, V. (2022). Cognition in teaching, learning, and training. Canadian Journal of Learning and Technology, 48(4).

Kurniasih, I., & Berlin, S. (2015). Various learning models (4th edition). Berlin Publisher.

Lie, A. (2011). Practicing cooperative learning in front of the class. PT Grasindo.

Lukman, S., Rindarjono, MG, & Karyanto, P. (2016). The influence of jigsaw and stad cooperative learning models on geography learning outcomes in terms of learning motivation. GeoEco Journal, 2(2), 114–127.

Maryani, H., & Sintara, D. (2021). Building local wisdom through innovation towards innovative learning. Lecturer Readiness to Improve Education Quality in the New Normal Era.

Mulyasa, E. (2017). Becoming a professional teacher creates creative and enjoyable learning (15th edition). PT Remaja Rosda Karya.

MZ, ZA, Rendani, F., Nainggolan, MS, & Jannah, N. (2018). Cooperative learning in reducing students' mathematical anxiety. Journal of Principles of Mathematics Education, 1(1), 23–27. https://doi.org/10.33578/dasar.v1i1.17

Panjaitan, MB, Siagian, AF, Purba, N., Herman, H., Sutikno, S., Sinaga, YK, and Sihombing, SD (2025) Fostering the Use of Talking Stick Learning Model on the Critical Thinking Ability in Science Learning. Journal of Curriculum and Teaching, 14(4), 14-25. DOI: https://doi.org/10.5430/jct.v14n4p14

Pertiwi, ND, & Sudrajat, A. (2022). Journal of Ideas, 8(1), 191–196. https://doi.org/10.32884/ideas.v8i2.695

Phafiandita, AN, Permadani, A., Pradani, AS, & Wahyudi, MI (2022). The urgency of evaluating learning in the classroom. JIRA: Journal of Innovation and Academic Research, 3(2), 111–121. https://doi.org/10.47387/jira.v3i2.262

Poerwadarminta. (1999). General Dictionary of the Indonesian Language (16th Edition). PT Balai Pustaka.

Polii, EH (2024). The effect of the jigsaw cooperative learning model on learning outcomes in introductory political science courses. Academy of Education Journal, 15(1), 564–572. https://doi.org/10.47200/aoej.v15i1.2252

Sanjaya, W. (2022). Planning and design of learning systems (8th edition). Kencana.

Sardiman, A. (2011). Interaction of motivation in teaching and learning (20th edition). PT Rajawali Pers.

Sidjabat. (2019). A curriculum framework for character-based Christian Religious Education in higher education. Jaffray Journal, 17(1), 73–90. https://doi.org/10.25278/jj.v17i1.314

Sijabat, BS (2018). Educating church members through the Selamat series (R. Napitupulu, Ed.; 1st ed.). BPK Gunung Mulia.

Slavin. (2022). Cooperative learning in elementary schools. Routledge. https://doi.org/10.4324/9781003316862

Spatioti, A., Kazanidis, I., & Pange, J. (2023). Educational design and evaluation models of learning effectiveness in e-learning. Turkish Online Journal of Distance Education, 24(4), 318–347. https://doi.org/10.17718/tojde.1177297

Suardipa, IP, & Primayana, KH (2020). The role of using evaluation design to improve the quality of learning. Journal of Education, Religion and Culture, 4(2), 88–100.

Sugiyono. (2019). Educational research methods (quantitative, qualitative, combination, R&D and action research) (3rd edition). Alfabeta.

Syarifuddin, A. (2021). The influence of online learning during the Covid-19 pandemic on student learning outcomes. Cendekia: Scientific Journal of Education, 9(2), 198–209. https://doi.org/10.33659/cip.v9i2.204

Ul Haq, I., Pifarré, M., & Fraca, E. (2024). Novelty evaluation using sentence embedding models in open-ended creative problem-solving. International Journal of Artificial Intelligence in Education, 34(4), 1599–1626.

Law of the Republic of Indonesia. (2016). Law No. 8 of 2016 concerning Persons with Disabilities.

Urhahne, D., & Wijnia, L. (2023). Theories of motivation in education: An integrative framework. Educational Psychology Review, 35(2).

Law Number 14 of 2005 concerning Teachers and Lecturers. (2005). Law Number 14 concerning Teachers and Lecturers.

Yuli, P., Tambunan, S., Karbui, T., Damanik, R., & Bani, Y. (2022). Challenges, opportunities, and strategies of Christian education in the era of disruption. CARAKA: Journal of Biblical Theology and Practice, 3(2), 295–308. https://doi.org/10.46348/car.v3i2.112