Jurnal Sustainable

Volume 6 Number 2 2023, 803-810
E-ISSN: 2655-0695
DOI:https://doi.org/ 10.32923/kjmp.v6i2.4238

The Effect of Video Media-Based Jigsaw Type Cooperative Learning Model to Increase Motivation and Science Learning Outcomes

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Abstract

The purpose of this research is to ascertain whether or not the Jigsaw method, which makes use of video media, improves the scientific motivation and cognitive learning results for fifth graders at SDN 2 Tekorejo. One component of the quantitative approach used in this research is the genuine experiment design technique. The experimental group and control group were selected using simple random selection from all fifth graders in five public primary schools in the Melati Cluster, Buay Madang Timur District, East OKU. Instruments for data collecting include surveys, exams, and observations; tests for normality and homogeneity, as well as independent t-tests, t-test samples, and gain tests, are used for data analysis. Students' levels of intrinsic desire to learn were found to be 0.49 in the control group and 0.78 in the experimental group, according to the N-Gain test. The experimental group's N-Gain test for cognitive learning outcomes was 0.65, but the control group's was just 0.43. Students' motivation and cognitive learning results were improved in the video-assisted jigsaw method class compared to the lecture method control class. It follows that students' motivation and cognitive learning results are impacted by the Jigsaw method with video media assistance.

Keywords: cooperative learning model, jigsaw, learning outcomes

History:
Received : 18 Nov 2023
Revised : 23 Nov 2023
Accepted : 30 Nov 2023
Published : 31 Dec 2023
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Publishers: LPM IAIN Syaikh Abdurrahman Siddik Bangka Belitung, Indonesia

Introduction

Teachers are currently considered an important factor in the development of education for students (Alfiyanto, 2022). Teachers seem to be determinants for educational success to prepare students to face the next life (Amalia et al., 2017). Teachers act as determinants of educational success because teachers play a major role in the teaching and learning process, where teachers must interact directly with students (Alfiyanto et al., 2021). For this reason, teachers are required to develop along with the development of technology and education to improve the quality of education and provide proper education for children (Efferi, 2015).

The low motivation and learning outcomes of students have become a thought for researchers in conducting learning, especially in science subjects (Khasanah, 2023). In general, students feel that science is a boring lesson, interactive between teachers and students tends to be passive, teachers often dominate learning activities and students only accept what is given by the teacher. Based on these problems, researchers tried to discuss with colleagues and principals about the problems experienced by researchers. Then researchers realized the problems that occurred in the field were caused by 1) The learning model used was less varied and uninteresting; 2) Lack of student motivation to learn; 3) Low level of student mastery of the subject matter; 4) The teacher's explanation is too abstract.

By looking at the weaknesses that occur in learning, researchers apply a new learning model that has never been applied in the classroom, namely the jigsaw type cooperative in the hope of increasing student motivation, activity, and learning outcomes. So that the research researchers conducted a study entitled "The effect of a video-based jigsaw-type cooperative

learning model to increase motivation and science learning outcomes in Class V SD Melati Cluster." Science courses in elementary schools / MI aim to make students have the following abilities: (1) Gain confidence in the greatness of God Almighty based on the existence, beauty and order of His creation; (2) Develop knowledge and understanding of science concepts that are useful and can be applied in everyday life; (3) Develop curiosity, positive attitudes and awareness of the interplay between science, environment, technology and society; (4) Develop process skills to investigate the natural environment, solve problems and make decisions; (5) Increase awareness to participate in maintaining, safeguarding and preserving the natural environment; (6) Increase awareness to appreciate nature and all its order as one of God's creations and (7) Acquire knowledge, concepts and science skills as a basis for continuing further education.

Researchers hope that with the application of a video-based jigsaw-type cooperative learning model, science learning objectives can be achieved, especially in grade V SD Cluster Melati, and can increase the professionalism of researchers in trying new knowledge in learning. Cooperative learning is teaching and learning activities in small groups. Students learn and work together to lead to an optimal learning experience for both individual and group experiences. Cooperative learning is characterized by a cooperative structure of tasks, objectives and rewards. Students working in cooperative learning situations are encouraged and willing to work together and they must coordinate their efforts to complete their tasks.

There are several benefits of the cooperative learning process, namely: (1) Students can improve their ability to work together with other students, (2) Students have more opportunities to appreciate differences, (3) Student participation in the learning process can increase, (4) Reduce student anxiety (reduce lack of confidence), (5) Increase self-motivation, and positive attitude, (6) Increase student achievement. Cooperative learning that is often used are: 1) Student teams achievement division (STAD), 2) Jigsaw, 3) think Pair Share, 4) and 3) Teams game tournament (TGT). The cooperative strategy used in this study is Jigsaw-type cooperative learning (Jaelani, 2015).

The basic thinking of this jigsaw technique is that providing opportunities for students to share with others, teaching and being taught by fellow students is an interesting part of the continuous learning and socialization process (Turnip et al., 2018). The jigsaw cooperative learning technique is a cooperative learning model where students learn small groups of four to six people heterogeneously and work together on positive and responsible interdependence independently (Sukarmini et al., 2016). Each group member is responsible for the completion of the part of the material that must be studied and conveys the material to other group members. Each member has a lesson plan that contains objectives, concepts to be delivered, notes, diagrams and problem solving (Zuardi, 2016). Researchers hope that the implementation of this jigsaw-type cooperative learning model can improve student achievement in grade V of SD Cluster Melati. Darmanjo stated that learning achievement is the result that has been achieved or shown by students as a result of their learning in the cognitive realm obtained by learning evaluation consisting of several levels, namely: knowledge, understanding, and application.

Method

This type of research is quantitative, using the true experiment design method. According to Sugiyono, the true experiment design method's main characteristic is that the experimental and control groups are randomly selected (Sugiyono, 2017). The randomly selected group (R) in this study consisted of two groups: group one, the experimental group, and group two, the control group. This study used a *pretest-postest control group design*. Two randomly selected samples (R) were given a pretest (O1 & O2) before learning to determine the initial state. Then, the posttest (O3 & O4) was carried out after learning, where the experimental class was given treatment (X), namely using the video media-assisted jigsaw method, while the control class did not (expository learning). This aims to determine whether the video media-assisted jigsaw method affects student

motivation and cognitive learning outcomes. The samples in this study were two public elementary schools, namely SD Negeri 2 Tekorejo with 30 students as an experimental class and SD Negeri Pengandonan with 30 students as a control class. A simple random sampling technique does sampling.

Results and Discussion

Results

Analysis of the Video Media-Assisted Jigsaw Method

1. Normality Test

values normalcy testing using SPSS version 23 software confirmed that the posttest value values in both the control and experimental groups were within the expected range. Table 2 below shows the results of the posttest normalcy test of learning motivation for students in the experimental and control classes:

Table 1
Study Motivation in the Experimental and Control Groups as Assessed by a Posttest Normalcy Test

Tests of Normality

	MOTIVATION 2	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	df	Say.	Statistic	df	Say.
MOTIVATION 1	MOTIVATION 1	.157	30	.058	.961	30	.328
	MOTIVATION 2	.178	30	.016	.873	30	.002

1. Lilliefors Significance Correction

The experimental class's learning motivation using the video media-assisted jigsaw technique and the control class's using expository learning from normally distributed data demonstrate that the value of $\alpha \geq 0.05$ with signs $0.058 > 0.05$, according to the normality test findings in Table 1. In addition, traditional due diligence is done.

2. Classic Endurance Test

By following the rules of classical diligence, we may determine whether or not the experimental and control groups' students are fully motivated to study. Table 2 below displays the outcomes of the conventional due diligence process:

Table 2
Classical Due Diligence Posttest Learning Motivation Experimental Class and Control Class

Classic Endurance Test	N	Minimum Value	Max Value	Mean	sd	P (%)
Experiment	30	85	95	91,15	8,871	90%
Control	30	83	90	87,93	7,297	87%

According to Table 3, the classical due diligence results show that the experimental class has better classical completeness than the control class. Students in the experimental class who use the video media-assisted jigsaw method have 90% learning motivation. Of the control group, 87% use expository learning. The next step was to conduct an independent t-test.

3. Uji Independent Sample T-test

To find the average difference between the experimental and control classes, statistical tests were performed using independent sample t-tests. See Table 3 for the results of the independent sample t-test:

Table 3
Independent Test T-Test Posstest Student Learning Motivation Experimental Class and Control Class

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Say.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
MOTIVATION 1	Equal variances assumed	8.438	.005	12.520	58	.000	8.16667	.65229	6.86097	9.47236
	Equal variances are not assumed.			12.520	51.265	.000	8.16667	.65229	6.85731	9.47602

According to the results of the average difference test in Table 3, specifically in the t-test column for Equality of Mean, the significance values are 0.000 < 0.05, and the computed values are 12.520 > 1.699 = ttable, thus accepting Ha. Therefore, it can be concluded that the jigsaw approach is more efficiently used for learning when accompanied with video material. Additionally, the fact that the Mean difference value of 8.166 is well-known. The results reveal a 3.17 point disparity between the control group's 87.93 points and the experimental group's 91.10 points on the learning motivation questionnaire. Afterwards, a test measuring student desire to learn was administered using a gain score.

Analysis of the Effect of the Jigsaw-Assisted Method

1. Normality Test

The normality test is carried out to determine the posttest value data in the experimental class and whether the control class is known to be normal or not. The data normality test in this study used the lilies *test* on the SPSS program version 23. Data on normality test results can be seen in Table 4 below.

Table 4

Normality Test Results

Tests of Normality

	JIGSAW MODELS	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
LEARNING OUTCOMES	LEARNING MODEL A	.173	30	.022	.899	30	.008
	JIGSAW MODELS	.138	30	.153	.956	30	.241

Table 4 displays the results of the normalcy test, which demonstrate that the experimental class's student assessment scores follow a normally distributed distribution with a significance level of 0.153, which is more than 0.05. The next step is to conduct a homogeneity test.

2. Homogeneity Test

After the data is known to be normal, a homogeneity test is carried out using Levene's test with SPSS version 23.

Table 5
Homogeneity Test Results

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
LEARNING OUTCOMES	Based on Mean	.192	1	58	.663
	Based on Median	.079	1	58	.779
	Based on the Median and with adjusted df	.079	1	51.130	.780
	Based on trimmed mean	.186	1	58	.668

3. Normality Test

The data normality test in this study used SPSS version 23 reliever.

Table 6
Normality Test Posttest of Student's Cognitive Learning Outcomes

Experiment Class and Control Class					
Normality Test	**Statistical Values**	**df**	**Sign**	**α = 0,05**	**Conclusion**
Experiment	0,124	30	0,153	0,05	Normal Distributed

The value of the normality test results in Table 6 shows that the data are normally distributed where the cognitive learning outcomes of the experimental class with the video media-assisted jigsaw method and the control class with expository learning are more than the value of α = 0.05 (sign > 0.05) so that it can be continued with classical due diligence.

4. Classic Endurance Test

Classically, the cognitive learning outcomes of each student in the experimental and control classes are known through classical due diligence. The results of classical due diligence can be seen in Table 7 below.

Table 7
Classical Due Diligence Posttest Hasel Cognitive Learning of Students

Experiment Class and Control Class						
Classic Endurance Test	**N**	**Minimum Value**	**Max Value**	**Mean**	**sd**	**P (%)**
Experiment	20	65	100	83,83	8,97	93,6
Control	30	65	90	57,00	9,15	73,3

Discussion

The study was conducted in two classes: one from SDN Pengdough, which used the lecture technique, and another from SDN 2 Tekorejo, which used the video media-assisted jigsaw method. Each class had 30 students. The findings demonstrated that fifth graders at SDN 2 Tekorejo were more motivated to study science when they used the jigsaw approach with video support. This is supported by studies carried out by Juwaeriah et al., which demonstrate that students who use the jigsaw learning paradigm exhibit heightened drive to study (Juwaeriah et al., 2017). The jigsaw learning paradigm has the potential to boost students' desire to study, according to Sanjaya's notion. The learning process relies on methods (Sanjaya, 2009). Kurniasih and Sani's belief that the jigsaw approach might encourage students to speak out and share their ideas is consistent with this observation (Kurniasih & Sani, 2015).

Learning video media, together with instructional strategies, significantly impacts students' intrinsic drive to learn. This is derived on studies done by Yulitasari on the topic of studying audiovisual media and the desire of students to learn (Yulitasari, 2018). This is supported by According to Kustandi and Sutjipto, video media may enhance students' motivation by

supplementing their fundamental experiences during class discussions (Kustandi & Sutjipto., 2013). One technology medium that has the potential to inspire students to study is video media. This is in accordance with Odera's thesis that kids might be motivated to study via the use of technology and learning media (Odera, 2011).

Student learning results are also impacted by the employment of the video-assisted jigsaw approach. Juwaeriah et al., Ummah & Hamna, and Yuliani found that students' learning results improved when they used the video media-assisted jigsaw approach (Juwaeriah et al., 2017; Ummah & Hamna, 2021; Yuliani, 2019). Supporting the idea put out by Kurniasih and Sani, the jigsaw approach helps pupils better grasp complex concepts. Using instructional video as a teaching tool is another factor that might influence students' final grades (Kurniasih & Sani, 2015). This is because, according to Dale's argument in Rusman, students' learning outcomes may be enhanced via the use of video media (Rusman, 2013).

Students' interest and performance in science classes are both enhanced by using the video-assisted jigsaw technique. The goal of teaching science in primary schools is to help pupils become better investigators and problem solvers in the real world, so this makes sense. Science education, according to Sulistiorini's thesis, helps kids cultivate an inquisitive mind, which in turn allows them to better understand their surroundings, find solutions to issues, and do their bit to keep the environment safe (Sulistyorini, 2007). Furthermore, this is in line with Khaeruddin's theory, which posits that teaching science to students helps them form positive attitudes and increases their awareness of the interconnected nature of science, the environment, technology, and society (Khaerudin, 2007).

Conclusion

Based on the results of research conducted for 2 cycles, it was concluded that 1) The use of a jigsaw-type cooperative learning model can increase student activity in class V science subjects of SD Melati Cluster; 2) The use of a jigsaw-type cooperative learning model can improve student learning outcomes in grade V science subjects of SD Melati Cluster; 3) Based on the results of research held for two cycles, the researcher suggested that a) This cooperative learning model can be used in other subjects; b) The cooperative application of this Jigsaw Type requires tools and materials that support learning, for that it is expected that the principal can help facilitate these learning tools and materials so that learning activities can run well.

Reference

Alfiyanto, A. (2022). Manajemen Rekrutmen Tenaga Pendidik Baru di SMA Nurul Palembang. *Adaara: Jurnal Manajemen Pendidikan Islam*. https://doi.org/10.30863/ajmpi.v12i1.1741

Alfiyanto, A., Riyadi, I., & Hidayati, F. (2021). Komunikasi Interpersonal Kepala Sekolah dalam Meningkatkan Motivasi Kerja Guru di SMP Negeri 23 Palembang. *Seminar Nasional Pendidikan Jurusan Tarbiyah Ftik Iain Palangka Raya*.

Amalia, F. N., Mashita, N., & W, N. T. (2017). Fungsi Guru Dalam Pembentukan Karakter Peserta Didik Di Sekolah. *Seminar Nasional Pendidikan*, 170.

Efferi, A. (2015). Model Pendidikan Guru Dalam Meningkatkan Mutu Pendidikan. *Jurnal Pendidikan Islam*, *3*(2), 237–256.

Jaelani, A. (2015). Pembelajaran Kooperatif, Sebagai Salah Satu Model Pembelajaran Di Madrasah Ibtidaiyya (Mi). *Al Ibtida: Jurnal Pendidikan Guru MI*, *2*(1). https://doi.org/10.24235/al.ibtida.snj.v2i1.189

Juwaeriah, S., Muhyani, M., & Ikhtiono, G. (2017). PENGARUH MODEL PEMBELAJARAN KOOPERATIF TIPE JIGSAW TERHADAP MOTIVASI BELAJAR DAN HASIL BELAJAR SISWA PADA MATA PELAJARAN MATEMATIKA. *Attadib: Journal of Elementary Education*, *1*(2), 78–93. https://doi.org/10.32507/attadib.v1i2.24

Khaerudin, M. J. (2007). *Kurikulum Tingkat Satuan Pendidikan, Konsep dan Implementasi di Madrasah*. Nusa Aksara.

Khasanah, R. et. al. (2023). Peningkatan Motivasi dan Hasil Belajar Ipa Melalui Metode Opic Berbantuan PhET. *Proceeding Seminar Nasional IPA*.

Kurniasih, I., & Sani, B. (2015). *agam Pengembangan Model Pembelajaran untuk Peningkatan Profesionalitas Guru*. Kata Pena.

Kustandi, C., & Sutjipto., B. (2013). Media Pembelajaran Manual dan Digital. *Jurnal Basicedu*.

Odera, F. Y. (2011). Motivation : the most Ignored Factor in Classroom Instruction in Kenyan Secondary Schools. *International Journal of Science and Technology*.

Rusman. (2013). *Model-Model Pembelajaran: Mengembangkan profesinalisme Guru*. Rajawali Pers.

Sanjaya, W. (2009). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Kencana.

Sugiyono. (2017). *Metode Penelitian Kuantitatif dan Kualitatif dan R&D*. ALFABETA.

Sukarmini, N. N., Suharsono, N., & Sudarma, I. K. (2016). Pengaruh Model Pembelajaran Kooperatif Tipe Jigsaw Dan Motivasi Berprestasi Terhadap Hasil Belajar Ekonomi Kelas X Sma Negeri 1 Manggis. *E-Journal Program Pascasarjana Universitas Pendidikan Ganesha Program Studi Teknologi Pembelajaran*, *6*(2), 1–8.

Sulistyorini, S. (2007). *Pembelajaran IPA Sekolah Dasar*. Tiara Wacana.

Turnip, R., Haryanto, & Sanova, A. (2018). Analisis Penerapan Model Pembelajaran Kooperatif Tipe Jigsaw dan Pengaruhnya Terhadap Kemampuan Berpikir Kritis Siswa Pada Materi Ikatan Kimia di Kelas X SMAN 1 Muaro Jambi. *Turnip Chemistry*, *1*(1), 1–7.

Ummah, M. K., & Hamna. (2021). The Effectiveness of Jigsaw Learning Model by Using Numbered Cards: Strategy for Increasing Mathematics Learning Motivation Students in Elementary School. *Pedagogik Journal of Islamic Elementary School*.

Yuliani, W. (2019). Pengaruh Metode Kooperatif Learning Tipe Jigsaw Terhadap Kemandirian Belajar Peserta Didik Kelas Vi Sdn Tunas Bakti Subang Tahun Pelajaran 2018 / 2019. *Quanta*, *4*(1), 44–51. http://e-journal.stkipsiliwangi.ac.id/index.php/quanta/article/view/1709

Yulitasari, D. (2018). *Pengaruh Pemanfaatan Media Video terhadap Motivasi dan Hasil Belajar IPA Siswa Kelas V Sekolah Dasar*. Magister Pendidikan Dasar Universitas Terbuka.

Zuardi. (2016). Penerapan Proses Pembelajaran IPS SD Dengan Menggunakan Kooperatif Learning Tipe Jigsaw di Sekolah Dasar. *Jurnal PGSD*, *2*(2), 4.