Jurnal Pijar MIPA
https://jurnalfkip.unram.ac.id/index.php/JPM

ISSN 1907-1744 (Print)
ISSN 2460-1500 (Bold)

The Effect of Cooperative Model-Integrated *Huyula* Local Wisdom Values on Mastery Concepts of Simple Machine Material

Tria Primayanti, Abdul Haris Odja*, Muhammad Yusuf, Tirtawaty Abdjul, Nova Elysia Ntobuo, Ritin Uloli

Department of Science Education, Faculty of Mathematics and Natural Sciences, Universitas Negeri Gorontalo, Gorontalo, Indonesia

*e-mail: abdulharis@ung.ac.id

Received: April 28, 2025. Accepted: May 16, 2025. Published: May 30, 2025

Abstract: The learning model can be interpreted as a whole series of material presentations that include all aspects before, during and after learning. This study aims to examine the effect of applying a cooperative model integrated with local wisdom values on the mastery of the concept of simple aircraft research at SMP Negeri 1 Telaga Biru. The research design used a One-Shot Case Study by using one class as a sample. The results showed a significant increase in student learning outcomes after being treated using a cooperative model integrated with local wisdom values. The use of cooperative models integrated with local wisdom values increases the active involvement of students in discussions and cooperation, so as to improve understanding of concepts and the ability to carry out activities that are directly related to the concept of simple aircraft material. Data analysis shows that the average posttest score is higher than the learning objectives achievement criteria (*KKTP*). The results showed the criteria for testing the hypothesis of a one-sample t-test, $t_{count} \geq t_{table}$, with α level = 0.05 for the experimental class, t table value (2.0096). This indicates that the cooperative model integrated with local wisdom values can improve students' learning outcomes in understanding the concept of simple aircraft material. This study concludes that the application of the cooperative model integrated with local wisdom values is effective because it involves students actively in the process of cooperation and discussion, thus strengthening their understanding of the material and achieving learning outcomes.

Keywords: Cooperative; *Huyula*; Local Wisdom; Think-Pair-Share; Simple Machine.

Introduction

Entering the Industrial Revolution 4.0, the education system and learning process are flooded with endless innovations. The increasingly sophisticated information system makes us disturbed by information that exceeds our capacity. Information and modernization can erode awareness and understanding of local wisdom if educational filtration is not [1]. Education of the younger generation requires a pattern or model with the pendetan strengthening of character education (PPK) with local wisdom. Local wisdom is taken as a place to implement the noble values of the Indonesian nation [2].

One of the cultural local wisdom values that is still passed down in Gorontalo society is the *Huyula* culture. *Huyula* is a word in the Gorontalo local language that means cooperation, helping or mutual cooperation based on the value of social solidarity. This cooperation is done as an effort to fulfil social needs. The form and orientation of cooperation carried out is more on economic, socio-cultural and religious activities [3]. The implementation of local wisdom values in the educational process in schools shows a wide variety of socialization efforts; the formulation of local wisdom education models and tools needs to be carried out in an integrated manner, considering the great potential that schools have in the implementation of local wisdom education [4].

Based on observations made at SMP Negeri 1 Telaga Biru, it was found that some students already know the meaning of the word *Huyula*, but students still have difficulty in understanding and applying *Huyula* cultural values in learning and daily life. Many learners do not know how to apply *Huyula* values, such as mutual cooperation at school. This can be seen in the low participation of learners in group discussions and completing joint tasks, where there is still selfishness and a lack of concern for fellow friends. In group tasks, each member should play an active role so that the task can be completed properly, but in reality, not all students realise their responsibilities, so that students are more silent and do not help the task completion process. Based on the problems found, it is necessary to introduce and cultivate the value of *Huyula* in participants.

Students can integrate the value of huyula into the learning process by using cooperative learning methods, which can help improve students' cooperation in facilitating the value of mutual cooperation in group tasks.

Through education, learners are encouraged to

How to Cite:
T. Primayanti, A. H. Odja, M. Yusuf, T. Abdjul, N. E. Ntobuo, and R. Uloli, "The Effect of Cooperative Model-Integrated Huyula Local Wisdom Values on Mastery Concepts of Simple Machine Material", *J. Pijar.MIPA*, vol. 20, no. 3, pp. 585–589, May 2025.
https://doi.org/10.29303/jpm.v20i3.9027

become individuals who are more critical in thinking [5]. In the learning process, teachers as organisers of learning activities must understand the character of students, and the learning atmosphere in the classroom is very influential on learning achievement [6]. The need for an active, collaborative, and responsive learning atmosphere for the character of learners makes the cooperative learning model relevant to be applied.

Cooperative learning is a collaboration carried out by each group member to achieve results that can later be felt together and can be used effectively at every grade level [7]. In the cooperative learning model, students learn together and help each other in achieving learning objectives, and emphasize cooperation and communication in producing a product or solving problems. That way, learners not only learn by themselves, but also learn to be a person who cares about others and the environment [8].

The learning process has the potential to influence learners' views, formed through interaction with the learning environment, and become a process of adaptation to changes faced by learners. With good planning, teachers can choose and apply learning methods that suit the needs of students, thus supporting the achievement of learning objectives [9]. One of the models that can increase effectiveness, academic mastery and skills is the Think-Pair-Share (TPS) type cooperative learning model [10].

The Think Pair Share cooperative learning model consists of three stages, namely: thinking, pairing, and sharing. In all stages of learning, students learn actively so that they can solve learning problems in pairs and explain the results of discussions in front of the class [11]. According to [12], the Think-Pair-Share cooperative learning model or thinking, pairing, and sharing, is a type of cooperative learning designed to influence students' interaction patterns. The Think-Pair-Share (TPS) type cooperative learning model is a learning model that provides opportunities for students to think first before discussing with their partners and presenting in front of the class, learning alone and working together with others.

The Think-Pair-Share (TPS) cooperative model is one of the techniques designed to give participants the opportunity to think about a particular topic, which allows them to formulate individual ideas and share these ideas with other learners [13]. With the application of the Think Pair Share type cooperative learning model, which means the participation of students in the learning process can reduce boredom compared to just listening to the teacher explain. Learners can also help each other in critical thinking or become peer guides (group friends who guide or help understand the material), so that students understand the material, which can have an impact on learning outcomes [14].

Based on the problems related to the low participation of students in group discussions and completing joint tasks, where there is still a selfish attitude and a lack of care for fellow friends, the researcher wants to know the effect of applying a cooperative model integrated with local wisdom values on the mastery of simple aircraft concepts. This research is expected to be able to help improve student learning outcomes through the application of cooperative models integrated with local wisdom values. Students can be more active in working together, sharing ideas, and being responsible in groups, so that students will more easily understand simple aircraft concept material.

Research Methods

This study used an experimental method, and the research design used in the study was a One-Shot Case Study, in which there was only one group that was given treatment and measured the results after the treatment was given (post-test). This research was conducted at SMP Negeri 1 Telaga Biru, located in West Pentadio Village, Telaga Biru District, Gorontalo Regency. The population in this study was class VIII-1 SMP Negeri 1 Telaga Biru, academic year 2024/2025. This study used the Total Sampling technique, this technique is a sampling technique in which the entire population is used as a research sample. The research sample used was class VIII-1 as an experimental class, totalling 25 students. The instrument used in this study is a test instrument in the form of objective questions, totalling 15 items, and essay questions, totalling 5 items, with a total of 20 items given after learning (post-test).

The data analysis techniques used are the normality test and hypothesis testing. The normality test is used to determine whether the post-test data is normally distributed. In this study, we will determine whether the data is normally distributed using Kolmogorov-Smirnov statistical analysis. Then the hypothesis test was carried out using the one-sample t-test to determine whether the average of one sample was significantly different from the value of the criteria for achieving learning objectives (*KKTP*).

Results and Discussion

This study discusses the effect of applying a cooperative model integrated with local wisdom values on the mastery of simple aircraft concepts at SMP Negeri 1 Telaga Biru. The subject population in this study was class VIII-1 as an experimental class, using a total sampling technique. The purpose of this study was to determine the effect of the application of cooperative models integrated with local wisdom values on the mastery of simple aircraft concepts.

The average post-test score of experimental class students is 90.09% higher than the criteria for achieving learning objectives (*KKTP*), which is 75%. The cognitive learning outcomes of students are obtained from the test

results by working on the questions given, based on the indicators that have been compiled. Students' cognitive abilities can be assessed based on C1 (explain), C2 (explain), C3 (calculate), and C4 (analyze). Then, the average percentage of cognitive achievement of experimental class students will be calculated.

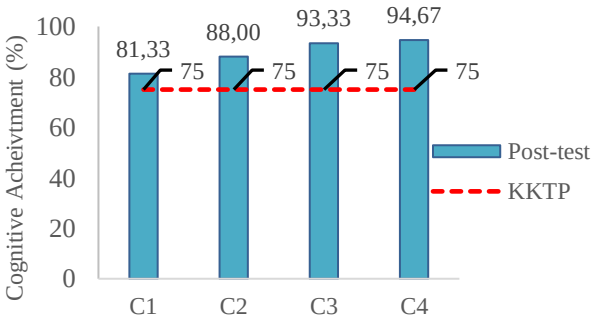

Figure 1. Cognitive Achievement Analysis Diagram of Experimental Class of SMP Negeri 1 Telaga Biru

Based on Figure 1. it can be seen that the results of the cognitive achievement of students in the experimental class after the posttest are higher than the criteria for achieving learning objectives (*KKTP*), it can be seen that the results of cognitive criteria C1 to C4 obtained from the posttest percentage show C1 has a percentage of 81.33%, C2 has a percentage of 88.00%, C3 has a percentage of 93.33%, C4 has a percentage of 94.67% based on the percentage of cognitive achievement in the experimental class C4 has a higher percentage compared to C1, C2, and C3. This shows an increase in the average learning outcomes of students in the experimental class at SMP Negeri 1 Telaga Biru, along with the application of cooperative learning models integrated with local wisdom values in understanding the concept of simple aircraft material.

The improvement of students' learning outcomes occurred along with the application of the Think-Pair-Share (TPS) cooperative model combined with the value of local wisdom (*Huyula*). The model of this activity is designed to increase interaction and cooperation between learners through structured activity stages. In the first stage, namely Think (thinking), learners think independently in understanding the problem, the second stage, Pair (pair), learners discuss to find solutions together, and the third stage, Share (sharing), learners present the results of the discussion. The stages of the TPS type cooperative model are in line with the local wisdom values of the *Huyula* culture, namely *Ambu* students instill the value of cooperation, responsibility, and deliberation in completing common tasks, *Hileiya* students encourage empathy, care when facing learning difficulties, *Ti'ayo* students strengthen the spirit of mutual cooperation to complete common tasks.

The results of this study are in accordance with research [15] which says that the cognitive learning outcomes of students who learn using the Think-Pair-Share type cooperative model are better than students who do not use the Think-Pair-Share type cooperative model are better than students who do not use the Think-Pair-Share type cooperative model. The use of the Think Pair Share type model combined with the value of local wisdom of Huyula culture can improve the cognitive aspects of students, thus creating a mutually supportive and structured learning atmosphere [16]. The data that has been obtained was then analysed through two stages, namely the normality test and hypothesis testing.

Normality Test

Normality testing aims to determine whether the research data obtained is normally distributed or not. The normality test used in this study is the Kolmogorov-Smirnov test using SPSS software version 27. The results of the normality test in the experimental class at SMP Negeri 1 Telaga Biru can be seen in Table 1 below.

Table 1. Normality Test Results (Kolmogorov-Smirnov)

	Statistic	df	Sig.	Mean
Experiment Class	.144	49	.056	90.09

Based on Table 1, the results of testing the normality of the data indicate that the significance value is greater than the alpha value (α) = 0.05. This shows that the research results in the experimental class at SMP Negeri 1 Telaga Biru are normally distributed. According to [17], the normal distribution is one form of distribution that is very important in statistics. Many analytical methods and techniques rely on the assumption of normality as a basic foundation. Population data will fulfil normal distribution conditions if the mean value is equal to the mode, and the median value is also equal to both values, and most values or scores gather around the Central position. If the data follows a normal distribution, then parametric statistics can be applied.

Hypothesis Test

The hypothesis is a temporary answer that is to be tested through research. Based on the definition of several experts, the hypothesis has several important components, namely, temporary conjectures, relationships between variables and truth tests [18]. Hypothesis testing in this study used a one-sample t-test in the experimental class at SMP Negeri 1 Telaga Biru. The results of hypothesis testing in the experimental class can be seen in Table 2.

Based on Table 2, obtained $t_{count} \geq t_{table}$ with the level $\alpha = 0.05$ for the experimental class obtained t count of 10.004> t table 2.0096. Then H0 is rejected and H1 is accepted. This shows that there is an effect of the think-

pair cooperative learning model on learning outcomes on the concept of simple aircraft at SMP Negeri 1 Telaga Biru. If $t_{count} > t_{table}$, which means the average value of post-test results of experimental class students is higher. Then H1 is accepted and H0 is rejected, meaning that there is a significant effect of using the Think-Pair-Share (TPS) type cooperative model combined with the value of local wisdom (*Huyula*) [19].

Table 2. Hypothesis Test Results

	-count	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Experiment Class	10.004	49	.000	13.06 660	10.44 19	15.6913

The Think-Pair-Share (TPS) type cooperative learning model, combined with the value of local wisdom (huyula), can be used as an effective alternative in the learning process because it can increase the ability of students to be more active in thinking, discussing, and understanding simple aircraft material through cooperation between friends. In line with the application of the Think-Pair-Share model, students' mathematical communication skills significantly improve because it provides opportunities for students to think independently, discuss in pairs, and express their opinions in front of their friends, so that students become active and understand the concept of learning better [20].

The Think Pair Share model is easy to implement across different learning levels and helps learners to actively think and exchange opinions. The advantages of the Think Pair Share (TPS) type learning model are easy to use at all levels and conditions, provide opportunities to think to develop the quality of students' responses, students play an active role in the concept of material, and students better understand class concepts when discussing with other students [12].

Research on the effect of applying a cooperative model integrated with local wisdom values on mastery of simple aircraft concepts at SMP Negeri 1 Telaga Biru is proven to be real, through the use of the Think-Pair-Share type cooperative model combined with local wisdom values (*Huyula*), the learning outcomes of students in science subjects, especially on simple aircraft material, have increased.

Conclusion

Based on the results of the study, it can be concluded that there is an effect of the application of the Think-Pair-Share (TPS) cooperative model on the learning outcomes of simple aircraft concepts at SMP Negeri 1 Telaga Biru in the experimental class. This is shown through the results of hypothesis testing criteria where $t_{count} \geq t_{table}$ with the level $\alpha = 0.05$ for the experimental class, then H0 is rejected and H1 is accepted. This shows that there is an effect of applying a cooperative model integrated with local wisdom values on the mastery of simple aircraft concepts at SMP Negeri 1 Telaga Biru.

Author Contribution

Tria Primayanti: conceptualization, drafting the original paper, Methodology; Abdul Haris Odja: Methodology. Muhammad Yusuf: Writing-preparation of original draft. Tirtawaty Abdjul: Writing-review and editing. Nova Elysia Ntobuo: Formal analysis, methodology. Ritin Uloli: Validation

Acknowledgments

The researcher would like to thank the principal, staff of the teachers' council, and students at SMP Negeri 1 Telaga Biru for their support in completing this research.

Reference

[1] I. P. O. Indrawan, I. G. Sudirgayasa, and I. K. W. B. Wijaya, "Integrasi Kearifan Lokal Bali di Dunia Pendidikan," *Prosiding Seminar Nasional Webinar Nasional Universitas Mahasaraswati Denpasar*, vol. 3, pp. 189–194, 2020. [Online]. Available: https://ejournal.unmas.ac.id/index.php/webinaradat/article/download/1181/1032

[2] I. P. P. Suryawan, I. M. Sutajaya, and I. W. Suja, "Tri Hita Karana sebagai Kearifan Lokal dalam Pengembangan Pendidikan Karakter," *Jurnal Pendidikan Multikultural Indonesia*, vol. 5, no. 2, pp. 50–65, 2022, doi: 10.23887/jpmu.v5i2.55555

[3] S. Mohi, "Eksistensi Budaya Lokal Gorontalo Sebagai Identitas Suku Bangsa Dalam Dimensi Globalisasi Dan Modernisme," *Jurnal Kepemimpinan Dan Pendidikan Islam*, vol. 5, no. 1, pp. 57–75, 2021, doi: 10.47945/transformasi.v5i1.504

[4] I. Wulandari *et al.*, "Integrasi Nilai Kearifan Lokal dalam Pendidikan Karakter Siswa di Era Globalisasi," *Jurnal Pendidikan Berkarakter*, vol. 7, no. 4, pp. 370–376, 2024. [Online]. Available: http://journal.ummat.ac.id/index.php/pendekar

[5] N. Rahma *et al.*, "Implementasi Model Pembelajaran Kooperatif Snowball Throwing Dalam Mata Pelajaran IPS Di Sekolah Dasar," *Jurnal Pendidikan Dasar Dan Sosial Humaniora*, vol. 2, no. 12, pp. 1621–1632, 2023. [Online]. Available: https://bajangjournal.com/index.php/JPDSH/article/view/6703/5229

[6] B. A. R. Putra, "Studi Literatur: Analisis Model Pembelajaran Kooperatif Dalam Meningkatkan Hasil Belajar Kognitif Siswa Sekolah Menengah Kejuruan," *Jurnal Pendidikan Teknik Elektro*, vol. 9, no. 3, pp. 533–540, 2020, doi: 10.26740/jpte.v9n03.p533-540

[7] I. N. Firdausi and Yuliyati, "Analisis Model Pembelajaran Kooperatif bagi Siswa Tunarungu," *Jurnal Pendidikan Khusus*, vol. 15, no. 1, pp. 1–7, 2020.

[8] M. Mukhtar, "Pembelajaran Kooperatif dan Kolaboratif Perspektif Pendidikan Islam," *Ameena Journal*, vol. 1, no. 2, pp. 162–174, 2023, doi: 10.63732/aij.v1i2.21
[9] S. M. Rahmalia and N. D. Sabila, "Perencanaan pembelajaran: pengertian, fungsi dan tujuan," *Karimah Tauhid*, vol. 3, pp. 6014–6023, 2024, doi: 10.30997/karimahtauhid.v3i5.13275
[10] A. Rukmini, "Model Kooperatif Tipe Think Pair Share (TPS) Dalam Pembelajaran Pkn SD," *Workshop Nasional SHEs: Conference Series*, vol. 3, no. 3, pp. 2176–2181, 2020. [Online]. Available: https://jurnal.uns.ac.id/shes
[11] M. Tampi, D. Irawan, and Azizahwati, "Penerapan Model Pembelajaran Think Pair Share Dengan Teknik Index Card Match Untuk Meningkatkan Hasil Belajar Kognitif Peserta Didik SMP Pada Materi Pengukuran," *Jurnal Pendidikan Ilmu Fisika*, vol. 5, no. 2, 2020, doi: 10.31540/sjpif.v5i2.2159
[12] N. V. Lasari, F. A. Z, and R. Widiyanto, "Penerapan Model Pembelajaran Think Pair Share untuk Meningkatkan Keaktifan dan Hasil Belajar Siswa Kelas IV," *Jurnal Pendidikan Dasar*, vol. 1, no. 1, pp. 105–123, 2021. [Online]. Available: http://uinjkt.ac.id/index.php/elementar
[13] P. I. Sari and Susiani, "Pengaruh Jigsaw, Pembagian Prestasi Tim Siswa (Stad), dan Teknik Think-Pair-Share (TPS) dalam Menulis Teks narasi," *Jurnal Ilmu Pendidikan*, vol. 5, no. 1, 2021. [Online]. Available: https://jes.ejournal.unri.ac.id/index.php/JES/article/view/8128
[14] Q. Rikza, A. D. Rahmawati, and A. Mashuri, "Percobaan Pembelajaran Think Pair Share dengan bantuan Perangkat lunak GeoGebra terhadap hasil belajar matematika siswa," *Jurnal Ilmiah Pendidikan Matematika*, vol. 11, no. 2, pp. 285–293, 2023, doi: 10.30738/union.v11i1.14595
[15] Ismalia, Sukarno, and Jefri, "Pengaruh Model Pembelajaran Kooperatif Tipe Think Pair Share (TPS) Terhadap Hasil Belajar Kognitif IPA Siswa," *Journal Physics and Science Education*, vol. 2, no. 3, pp. 164–168, 2022, doi: 10.30631/psej.v2i3.1696
[16] N. A. Rahim *et al.*, "Development Of Learning Tools In The Cooperative Think Pair Share (TPS) Model Integrated With Huyula Values Reviewed From The Cognitive Aspect," *Science Education Journal (SEJ)*, vol. 8, no. 1, pp. 57–75, 2024, doi: 10.21070/sej.v8i1.1650
[17] A. Ritonga *et al.*, "Penerapan Distribusi Normal Dalam Pengukuran Tinggi Badan Mahasiswa FMIPA Universitas Negeri Medan 2024," *Jurnal Ilmiah Matematika, Kebumian dan Angkasa*, vol. 3, no. 2l, pp. 39–53, 2025, doi: 10.62383/bilangan.v3i2.465
[18] J. H. Yam and R. Taufik, "Hipotesis Penelitian Kuantitatif," *Jurnal Ilmu Administrasi*, vol. 3, no. 2, pp. 96–102, 2021. [Online]. Available: https://ejournal.unisa.ac.id/index.php/perspektif/article/view/1540
[19] S. F. Meilana, N. Aulia, Z. Zulherman, and G. B. Aji, "Pengaruh Model Pembelajaran Think Pair Share (TPS) terhadap Kemampuan Berpikir Kritis di Sekolah Dasar," *Jurnal Basicedu*, vol. 5, no. 1, pp. 218–226, 2020, doi: 10.31004/basicedu.v5i1.644
[20] M. Abdi and Hasanuddin, "Pengaruh Model Pembelajaran Think Pair Share dan Motivasi Belajar terhadap Kemampuan Komunikasi Matematis Siswa Sekolah Menengah Pertama," *JURING (Journal for Research in Mathematics Learning)*, vol. 1, no. 2, pp. 99–110, 2018, doi: 10.24014/juring.v1i2.4778
[21] I. Nurussofi, I. K. Mahardika, and A. S. Budiarso, "Dampak dari Koperasi Think Pair Share Model Pembelajaran Berbasis Multi Representasi Lembar Kerja tentang Pemikiran Kritis Siswa," *Jurnal Sains dan Pendidikan Sains*, vol. 3, no. 2, pp. 110–114, 2022, doi: 10.29303/jossed.v3i2.1804