Research Paper

The Effectiveness of Learning Sub Theme 1 Cultural Diversity of My Nation Using the Problem Based Learning Model Assisted by Image Media and Audio Media Based on Learning Styles on Student Learning Outcomes

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ABSTRACT

The purpose of this study was to determine the effectiveness of learning in sub-theme 1 of the cultural diversity of my people using the Problem Based Learning model assisted by media images and using audio media learning based on learning styles on student learning outcomes. This research is a factorial design research. The sample in this study were fourth grade students at SD Negeri 67 Buton and fourth grade students at SD Negeri 39 Buton with a total of 59 students. The results showed 1) learning in sub-theme 1 of the cultural diversity of my people used the problem-based learning model assisted by media images based on learning styles on student learning outcomes effectively carried out in experimental class 1 with a visual learning style, 2) learning in sub-theme 1 of the cultural diversity of my people used the problem model based learning assisted by audio media based on learning styles on student learning outcomes is effectively carried out in experimental class 2 with auditory learning styles, 3) sub-theme 1 learning of cultural diversity of my nation class IV elementary school using problem based learning assisted by media images is better than problem based learning models audio-assisted media.

Keywords: problem based learning models, image media, audio media, learning styles, learning outcomes

INTRODUCTION

Education has become a primary human need. In carrying out life in society, nation and state, humans must have education, with education humans have the potential and skills possessed within themselves which can be used as provisions in carrying out social life. A developed nation is the ideal of every country. Education itself can be pursued through formal and informal institutions. Education is very important for the life of the nation's next generation, because education can meet human needs, for this reason the government and society should be aware of the importance of education for the nation's next generation. Therefore, to build the nation, the state must have high quality education. Mathematical literacy is one of the important components that students need to be able to successfully solve problems with the ability to analyze, give reasons, and convey ideas effectively, formulate, solve and interpret mathematical problems in various forms and situations. Activating student learning in learning activities is one way to animate and train student memory so that it works to develop optimally (Marno, 2018).

Curriculum is a tool in education. The curriculum used from year to year changes with the times. Government Regulation no.

13 of 2015 concerning National Education Standards article 1 paragraph 16 that the curriculum is a set of designs and arrangements regarding objectives, content and learning, as well as the methods used as guidelines for implementing learning activities to achieve educational goals. Education in Indonesia implementing the 2013 Curriculum aims to develop attitudes (affective), thinking skills (cognitive) and skills (psychomotor) contained in various learning content.

The 2013 curriculum for grade IV SD contains theme 1 thematic material, namely The Beauty of Togetherness, which contains sub-theme 1 material on the Cultural Diversity of My Nation which studies social diversity, economic diversity and cultural diversity. Social diversity explains material about everything related to differences in a society or a certain scope. Social diversity includes differences in ethnicity, language, customs, and religion in the surrounding community. Economic diversity explains material about differences in the economic activities of a society to meet their needs.

Daily economic activities include production, distribution, and consumption. Cultural diversity explains material about differences in habits owned by a group of people and passed down from generation to generation.

Regulation of the Minister of Education and Culture Number 22 of 2016 concerning Process Standards for Elementary and Secondary Education, the learning process in education units is carried out in an interactive, inspiring, fun, challenging manner, motivating students to be actively involved, and providing sufficient space for initiative, creativity and independence according to the talents, interests, and physical and psychological development of students. However, the Covid-19 pandemic which has been going on for 2 years has had a negative impact. Many Indonesian children are experiencing learning lag. For this reason, the duties and roles of a teacher are needed, not only as a provider of

information but also as a learning motivator so that students construct their own knowledge through various activities that demand the active role of students, thereby increasing student learning outcomes.

Improving learning outcomes can be done through the application of problem-based learning models. Rusman (2017: 112) defines the problem-based learning model as a learning model that studies knowledge through the stages of the scientific method that invites students to solve a problem individually. Through the problem-based learning model at the beginning of learning, students are presented with a problem to be solved by means of investigation and then examined with a problem-solving approach.

Problem-based learning is a learning approach that focuses on problems that exist in the real world as learning contexts that will be completed by students so that they can trigger students to actively engage in social relations with their environment (Husnah, 2018). With the PBL model students can develop problem-solving skills and think critically in finding the best solutions so as to help students gain the necessary knowledge and skills (Hartati & Sholihin, 2015). Kilroy, (2004); Yew & Goh, (2016) stated that PBL enhances learning by providing a highly motivating environment to focus on forming independent knowledge and sustainable abilities in learning and thinking so as to form scientific concepts and achieve the desired results. In addition, Lattimer & Riordan, (2011) also stated that PBL is an effective way to involve and motivate students in teaching and learning activities where students respond to problems and questions in the real world.

Some of the advantages of applying the problem based learning model include that students can improve their problem solving skills in learning activities, students have the skills to increase their knowledge relevant to their world, so that they gain knowledge independently, the main focus in learning is presenting problems according to

student material so that improve understanding, easier to remember, through group learning activities there are scientific activities, encourage them to be full of thoughts, build leadership and cooperation, students are accustomed to using sources of knowledge, accustomed to diverse learning resources can stimulate the development of creative and holistic thinking skills, have the skills to measure learning methods and achievements, the ability to communicate with friends in discussion and presentation activities is developing (Saleh, 2013).

Sudjana and Riva'i (2017:3) explain that to support the application of the problem-based learning model, media is needed which is very important to use in the learning process. Learning media will help students more easily absorb material, according to Piaget's stage of cognitive development, elementary school-age students are at the concrete operational stage, thus helping students absorb and develop all their knowledge in learning material in the classroom in a fun way (Mitasari, 2018). The use of learning media is very closely related to the stages of thinking, where students think logically about objects or events but are limited to things that are concrete, because through learning media abstract things can be concretized, and complex things can be simplified. In order for messages to reach students properly, it is necessary to choose media that is appropriate to the learning material (Suasari, 2017).

Learning media is a container for channeling messages that the teacher wants to convey to students (Agustina et al., 2017). Learning media that can be used include media images and audio media. Image media can clearly capture the information contained therein. With the pictures students can be taken over by the teacher's attention. Image media is cheap media that can be found anytime and anywhere (Wulandari S & Indihadi, 2021). Image media can attract students' attention and build a more enjoyable learning atmosphere. So that before the learning process the teacher has prepared the images to be displayed. The characteristics of learning using picture media make students more active, innovative, and creative. The material is presented in the form of pictures which are sorted into a subject matter. This method makes students more interested in the material presented and makes it easier for students to understand (Kusnandi et al., 20 13:41).

Audio media is a medium for conveying messages that will be conveyed to students in the form of intermediaries or non-print introductions that are heard directly so that students are able to master certain competencies from the learning activities carried out (Setiawati & Jonaldy, 2021). The function of audio media is to train all skills development activities, especially those related to aspects of listening skills. Skills that can be achieved by using audio media are focusing attention and maintaining attention; following directions; train analytical power; sorting out relevant information or ideas from irrelevant information; summarize, restate, or recall information (Hildayah, 2019). Audio media also has a lot of influence on learning.

In addition, understanding and absorbing lessons is a person's ability that is definitely different in his level of ability. Some are very slow, some are moderate and some are very fast in understanding information or lessons, so they often have to take a different way. The way to understand or absorb information or lessons is a person's learning style. Learning style is a way of absorbing information or lessons easily in students (Rijal & Bachtiar, 2015). It is the student's own learning style that is able to absorb and process information or knowledge more easily. Therefore, if we can understand each student's learning style and direct students in recognizing learning styles according to themselves, it will help students get the right learning style and provide maximum results for themselves in absorbing information properly, optimally,

and effectively so that will help improve learning outcomes (Nurhidayah, 2016). There are three kinds of learning styles, namely visual, auditory and kinesthetic. Learning styles that suit the human self will facilitate the learning process to achieve maximum learning results and allow students to learn more quickly to catch what they learn.

Learning styles that are often found in students include visual learning styles and auditory learning styles. Everyone who has a visual learning style has a high need to see and capture information visually before they understand it. They find it easier to understand material when they see events, see the information written in the form of pictures (Budiarti & Jabar, 2016). The auditory learning style is a listener learning style that learns through hearing (ears). They express themselves through hearing. They also remember things by "seeing" what is stored in their ears. In general, a child who has this auditory learning style likes to listen to lectures, discussions, news on the radio, and also learning tapes. They enjoy learning by listening to and interacting with others.

Based on the results of observations and interviews with grade IV teachers in cluster 9 elementary schools in Pasarwajo District, several facts were found, including in learning activities there was no innovative learning model that connected learning material with problems and experiences in the environment experienced by students, teachers did not involve students too much in the process. acquisition of knowledge, learning tends to only fulfill the cognitive aspects of students as indicated by teaching and learning activities that still emphasize mastery of the material as much as possible. This can be seen from the lack of courage in expressing opinions or asking questions to the teacher, and the absence of cooperation in group assignments to solve problems. In addition, the teacher pays little attention to each student's learning style, even though students have different learning styles. The

media used is as simple as a blackboard, there are no other additional media that support the learning process. This is what causes students to have difficulties in terms of understanding the material and learning outcomes are not yet complete, so that the learning outcomes in the final semester exam scores do not reach the minimum completeness criteria (KKM). At the end of semester grade IV at SDN 67 Buton, around 51% of students' scores were below KKM 70. For Social Studies class IV at SDN 39 Buton, there were around 50% of students' scores below KKM 70. To address some of these problems, it is necessary there is an innovative learning model that can encourage and stimulate students to improve their learning outcomes. The learning model that is assumed to be able to overcome these problems is the problem-based learning model assisted by image and audio media based on learning styles on student learning outcomes.

MATERIALS AND METHODS

This study uses a research design that is factorial design. In this study there are independent variables, moderator variables and dependent variables, namely independent variables using problem based learning models assisted by media images, independent variables using problem based learning models assisted by audio media, visual, auditory and other learning styles, dependent variable learning sub theme 1 the cultural diversity of my nation. The population of this study were fourth grade elementary school students in the 2022/2023 academic year. The samples in this study were class IV of SD N 67 Buton and SD N 39 Buton.

The data collection techniques used in this study were tests and observations. The test technique was used to obtain scores, both for the experimental group 1 using the problem based learning model assisted by media images and for the experimental group 2 using the problem based learning model assisted by audio media. The data

analysis technique using the normality test was used to determine whether the two groups were normally distributed or not. The technique used to test for normality was the One Sample Kolmogorov-Smirnov Test analysis using SPSS. The homogeneity test is carried out to obtain the assumption that the research sample originates from the same or homogeneous conditions, which is then used to determine the t statistic that will be used in hypothesis testing. The homogeneity test is carried out by investigating whether the two samples have the same variance or not. The hypothesis test used to analyze this research is using the t test with the help of the SPSS program. one-way Anova test is to compare two or more averages that will be used to test generalizability.

RESULT DAN DISCUSSION
The results of this study include the learning effectiveness of sub-theme 1 cultural diversity of my nation using the Problem Based Learning model assisted by media images based on learning styles on student learning outcomes, the learning effectiveness of sub-theme 1 cultural diversity of my nation using the Problem Based Learning model assisted by audio media based on learning styles on learning outcomes students, and differences in the effectiveness of learning in sub-theme 1 cultural diversity of my nation using the Problem Based Learning model assisted by image media and audio media based on learning styles on student learning outcomes.

Table 1. Differences in Pre-Test and Post-Test Results

Class	N	Mean	
		Preliminary Test	**Final Test**
Experiment 1	31	54,38	82,41
Experiment 2	28	50,64	80,67

Based on table 1, it shows that the average value of the initial test for the problem based learning class assisted by media images is 54.38 and the average value of the final test is 82.41. While the average value of the initial test class problem based learning assisted by audio media was 50.64 and the average value of the final test was 80.67.

Table 2. Differences in Learning Test Results

Class	N	Learning Style Visual	Auditorial	Mean
Problem BasedLearning Image Assisted Media	31	85.06	79.91	82.85
Problem BasedLearning Media Assisted Audio	28	80.15	81,84	81.00

Based on Table 2, it can be explained that the average value of students in learning sub-theme 1 of the cultural diversity of my nation using the problem-based learning model assisted by media images with a visual learning style is 85.06 and the average value of students with an audiotorial learning style is 79.91. It can be concluded that learning sub-theme 1 of the cultural diversity of my people using the problem-based learning model assisted by media images is more effective for students with a visual learning style.

The average score of students in learning sub-theme 1 cultural diversity of my people using the problem-based learning model assisted by audio media with a visual learning style is 80.15 and the average value of students with an auditory learning style is 81.84. It can be concluded that learning sub-theme 1 of the cultural diversity of my people using a problem-based learning model assisted by audio media is more effective for students with an auditory learning style.

Table 3. One Way Appeal Test

ANOVA					
Learning outcomes					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	182.083	2	91.041	5.651	.007
Within Groups	628.322	39	16.111		
Total	810.405	41			

Based on the results of the one way ANOVA comparative test in the table above, it shows the sig. 0.007. Data in the sig column. 0.007 <0.005. So H0 is rejected and H1 is accepted. So from these results it shows that there is a significant difference in average learning outcomes in problem based learning classes assisted by media images with visual learning styles and problem based learning. Assisted audio media with visual and auditory learning styles. Because there are significant average differences between the various learning styles, the LSD follow-up test can be carried out

Table 4. LSD Follow-Up Test

Multiple Comparisons						
Dependent Variable: HasilBelajar						
LSD						
(I) Class	(J) Class	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
PBL Visual Image	PBL BA Visual 2	4.90865*	1.49874	.002	1.8772	7.9401
	PBL BA Auditory 1 2	3.21635*	1.49874	.038	.1849	6.2478
PBL Auditory Audio	PBL BG Visual 1	-3.21635*	1.49874	.038	-6.2478	-.1849
	PBL BA Visual 2	1.69231	1.57435	.289	-1.4921	4.8767
*. The mean difference is significant at the 0.05 level.						

Based on the results of the LSD follow-up test, it states that for a comparison between the PBL class assisted by visual learning style media and the PBL class assisted by audio media, the visual learning style has a sig value. 0.002 and the auditory learning style has a sig value. 0.038. The data shows sig. = 0.002 < 0.005 and sig 0.038 < 0.05. So there is a significant difference in average learning outcomes between PBL classes assisted by visual learning style media pictures and PBL classes assisted by audio media visual and auditory learning styles. As for the comparison between the PBL class assisted by audio media visual learning styles and the PBL class assisted by image media the visual learning style has a sig value. 0.038. The data shows sig. = 0.038 <0.005. So there is a significant difference in average learning outcomes between PBL classes assisted by audio media with auditory learning styles and PBL classes assisted by visual learning style media. As for the comparison between PBL classes assisted by audio media with auditory learning styles and PBL classes assisted by audio media with visual learning styles, it has a sig value. 0.289. The data shows sig. = 0.289 <0.005. So there is no significant difference in average learning outcomes between PBL classes assisted by audio media with auditory learning styles and PBL classes assisted by audio media with visual learning styles. To conclude which is the best can be seen from the following descriptive.

Table 5. Test Descriptives

Learning outcomes								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
PBL BG Visual 1	16	85.0625	3.33604	.83401	83.2848	86.8402	80.00	91.00
PBL BA Visual 2	13	80.1538	4.66987	1.29519	77.3319	82.9758	73.00	86.00
PBL BA Auditorial 2	13	81.8462	4.07934	1.13141	79.3810	84.3113	75.00	86.00
Total	42	82.5476	4.44589	.68602	81.1622	83.9331	73.00	91.00

Based on the descriptive table, it can be seen that the PBL learning model assisted by media images with a visual learning style has an average learning result of 85.06. While the PBL model assisted by audio media with a visual learning style has an average learning outcome of 80.15 and the

auditory learning style has an average learning outcome of 81.84

So, it can be concluded that the PBL learning model assisted by media images with visual learning styles has the highest average learning outcomes, so descriptively it can be concluded that the PBL learning model assisted by image media with visual learning styles is more effective than the PBL model assisted by audio media with learning styles visual and auditory.

CONCLUSION

Based on the results of the research and discussion that has been presented, the following conclusions can be put forward: 1) learning in sub-theme 1 of the cultural diversity of my nation uses a problem-based learning model assisted by media images based on learning styles on student learning outcomes effectively carried out in experimental class 1 with visual learning styles, 2) learning sub-theme 1 of the cultural diversity of my nation uses the problem-based learning model assisted by audio media based on learning styles on student learning outcomes effectively carried out in experimental class 2 with auditory learning styles, 3) learning sub-theme 1 of the cultural diversity of my nation class IV elementary school uses problem-based learning aided by image media is better than the problem-based learning model assisted by audio media.

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REFERENCES
1. Agustina, D., Suyatna, A., & Suyanto, E. (2017). Gambar bergerak atau animasi menurut Ali (2011) adalah "Termasuk ke dalam Media motion-visual, yakni media yang mempunyai gambar obyek bergerak, tapi tanpa mengeluarkan suara, seperti film bisu yang bergerak". Jurnal Pembelajaran Fisika, 5(1), 25–34.
2. Budiarti, I., & Jabar, A. (2016). Pengaruh gaya belajar terhadap hasil belajar matematika siswa kelas VIII SMPN 2 Banjarmasin tahun ajaran 2015/2016. Math Didactic: Jurnal Pendidikan Matematika, 2(3), 142–147. https://doi.org/10.33654/math.v2i3.42
3. Hartati, R., & Sholihin, H. (2015). Meningkatkan Kemampuan Berpikir Kritis Siswa Melalui Implementasi Model Problem Based Learning (PBL) Pada Pembelajaran IPA Terpadu Siswa SMP. Prosiding Simposium Nasional Inovasi Dan Pembelajaran Sains, 1(1), 1–5. http://www.academia.edu/download/49573147/EDU_133_-__RISA_HARTATI_-_Rev.pdf
4. Hildayah, D. (2019). Penggunaan Media Visual, Auditif, dan Kinestik untuk Meningkatkan Hasil Belajar Siswa. Prosiding Seminar Nasional Pendidikan FKIP, 2(1), 137–146.
5. Kilroy, D. A. (2004). Problem based learning. Emergency Medicine Journal, 21(4), 411–413. https://doi.org/10.1136/emj.2003.012435
6. Lattimer, H., & Riordan, R. (2011). Project-based learning engages students in meaningful work: Students at High Tech Middle engage in project-based learning. Middle School Journal, 43(2), 18–23.
7. Mitasari, N. R. (2018). Model Pembelajaran Edutainment Dalam Perkembangan Kognitif Siswa Sekolah Dasar. Jurnal Cakrawala Pendas, 4(1).
8. Nasution Husnah, N. F. (2018). Peningkatan Keterampilan Sosial Pada Pelajaran IPS Melalui Implementasi Model Pembelajaran Problem Based Learning Pada Siswa di Kelas IV SD Negeri 085119 Sibolga T.P. 2016/2017. Jurnal Biolokus, 1(1), 1–13.
9. Nur Laili, A. F. (2017). Hubungan Dukungan Keluarga Dan Pengetahuan Terhadap Perawatan Diri Penderita Kusta Di Puskesmas Grati Tahun 2016. The Indonesian Journal of Public Health, 12(1), 13.

https://doi.org/10.20473/ijph.v12i1.2017.13-26

10. Nurhidayah, D. A. (2016). Pengaruh Motivasi Berprestasi Dan Gaya Belajar Terhadap Prestasi Belajar Siswa Pada Mata Pelajaran Matematika Smp. Jurnal Dimensi Pendidikan Dan Pembelajaran, 3(2), 13–24. https://doi.org/10.24269/dpp.v3i2.83

11. Rijal, S., & Bachtiar, S. (2015). Hubungan antara Sikap, Kemandirian Belajar, dan Gaya Belajar dengan Hasil Belajar Kognitif Siswa. Jurnal Bioedukatika, 3(2), 15. https://doi.org/10.26555/bioedukatika.v3i2.4149

12. Saleh, M. (2013). Strategi Pembelajaran Fiqh Dengan Problem-Based Learning. Jurnal Ilmiah Didaktika, 14(1), 190–220. https://doi.org/10.22373/jid.v14i1.497

13. Setiawati, C., & Jonaldy, B. (2021). The Effectiveness of Using Audio Media Stories on Speech Delay Children in Class A PAUD KBIT A'inun Bekasi. Journal of Education and Social …, 1(2), 119–126. https://jurnal.edusiapublika.co.id/index.php/jess/article/view/117%0Ahttps://jurnal.edusiapublika.co.id/index.php/jess/article/download/117/16

14. Suasari, A. G. (2008). PENGEMBANGAN MEDIA PEMBELAJARAN RODA JELAJAH INDONESIA THE DEVELOPMENT OF RODA JELAJAH INDONESIA MEDIA FOR SOCIAL STUDIES 5 th. 3–10.

15. Wulandari S, G., & Indihadi, D. (2021). Analisis Teks Deskripsi melalui Media Gambar Tunggal di Sekolah Dasar. Edukatif : Jurnal Ilmu Pendidikan, 3(5), 2345–2354. https://edukatif.org/index.php/edukatif/article/view/811

16. Yew, E. H. J., & Goh, K. (2016). Problem-Based Learning: An Overview of its Process and Impact on Learning. Health Professions Education, 2(2), 75–79. https://doi.org/10.1016/j.hpe.2016.01.004

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