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DEVELOPMENT OF BLENDED LEARNING MODEL BASED ON JEPARA'S LOCAL WISDOM TO INCREASE STUDENT'S CONCEPT UNDERSTANDING

Abstract. The purpose of this research is to 1) discover a learning model that can improve students' conceptual understanding of social studies during the pandemic era and 2) analyze the effectiveness of the blended learning model based on Jepara's local wisdom to improve student's conceptual understanding. This research was conducted because of a lack of student's concept understanding, blended learning model and social studies learning didn't integrate with local wisdom. This research method is Research and Development that uses the procedure of Borg & Gall with ten stages. The trial design of product improvement is the nonequivalent pretest-posttest control group design. Data sources in this research were from teachers and students. The data collection techniques were observation, interview, and test. The data analyzed were validity and reliability test, worthiness test of learning model, and effectiveness test. The worthiness test of the learning model was expert validation and pretest-posttest. The effectiveness test of the learning model were 1) normality and homogeneity test, and 2) the effectiveness test used two independent sample t-test. The effectiveness test of the learning model in the experimental group can reach the minimum standard competence with P-value = 0.018. This research showed that a blended learning model based on Jepara's local wisdom could increase students' conceptual understanding of social studies.

Keywords: Blended learning model, local wisdom, social studies, student's concept understanding.

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Оқушылардың түсінігін арттыру үшін Джепараның жергілікті даналығына негізделген аралас оқыту моделін әзірлеу

Аңдатпа. Бұл зерттеудің мақсаты: 1) пандемия кезіндегі әлеуметтік зерттеулер бойынша студенттердің тұжырымдамалық түсінігін жақсарта алатын оқу үлгісін ашу және 2) студенттің тұжырымдамалық түсінігін жақсарту үшін Джепараның жергілікті даналығына негізделген аралас оқыту моделінің тиімділігін талдау. Бұл зерттеу студенттің тұжырымдамасын түсінбеуінен, аралас оқыту моделінен және әлеуметтік зерттеулерді оқыту жергілікті даналыққа сәйкес келмегендіктен жүргізілді. Бұл зерттеу әдісі он кезеңнен тұратын Борг және Галл процедурасын қолданатын зерттеу және дамыту әдістерінен тұрады. Өнімді жетілдірудің сынақ жобасы – бұл теңдессіз алдын-ала сынақтан кейінгі бақылау тобының жобасы. Бұл зерттеудегі деректер көздері мұғалімдер мен студенттерден алынды. Деректерді жинау әдістері бақылау, сұхбат және тест тапсырмаларынан құралды. Талданған деректер валидтілік пен сенімділік тесті болды. Оқыту моделінің лайықтылық сынағы сарапшылық тексеру мен алдын ала тестілеуден тұрды. Оқыту моделінің тиімділік сынағы 1) қалыптылық пен біртектілік сынағы және 2) тиімділік сынағы екі тәуелсіз таңдау t-тесті қолданылды. Эксперименттік топтағы оқыту моделінің тиімділік тесті P-мәні = 0,018 минималды стандартты құзыреттілікке жетуі мүмкін. Бұл зерттеу Джепараның жергілікті даналығына негізделген аралас оқыту үлгісі студенттердің әлеуметтік зерттеулер туралы тұжырымдамалық түсінігін арттыра алатынын көрсетті.

Кілт сөздер: аралас оқыту моделі, өлке даналылығы, қоғамтану, ұғымдарды түсіну.

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Разработка модели смешанного обучения на основе местной мудрости Джепары для улучшения понимания учащимися концепций

Аннотация. Цель данного исследования состоит в том, чтобы 1) найти модель обучения, которая может улучшить концептуальное понимание учащимися социальных наук в эпоху пандемии, и 2) проанализировать эффективность модели смешанного обучения, основанной на местном опыте Джепары, для улучшения концептуального понимания учащихся. Это исследование было проведено из-за отсутствия у студентов понимания концепции, модели смешанного обучения и изучения социальных наук, которые не интегрировались с местной мудростью. Этот метод исследования называется «Исследования и разработки», в котором используется процедура Борга и Галла с десятью этапами. Пробный план улучшения продукта представляет собой неэквивалентный план контрольной группы до и после тестирования. Источниками данных в этом исследовании были учителя и студенты. Методами сбора данных были наблюдение, интервью и тестирование. Анализируемые данные представляли собой тест на валидность и надежность, тест на пригодность модели обучения и тест на эффективность. Проверкой пригодности модели обучения была экспертная проверка и предварительное тестирование. Тест эффективности модели обучения представлял собой 1) тест на нормальность и однородность и 2) тест эффективности с использованием двух независимых выборочных t-тестов. Тест

эффективности модели обучения в экспериментальной группе может достигать минимальной стандартной компетентности с Р-значением = 0,018. Это исследование показало, что модель смешанного обучения, основанная на местных знаниях Джепары, может улучшить концептуальное понимание учащимися социальных наук.

Ключевые слова: Модель смешанного обучения, местная мудрость, обществознание, понимание учащимися понятий.

Introduction

Local wisdom is an idea in an area with good value and is also embedded in local society. According to Arifin, Sri & Gunawan [1], local wisdom is intellectual property in a region of knowledge, norms, traditions, beliefs, cultures, and others. Because of the cultural differences in every region, so people can recognize their own culture better with local wisdom. The subject that has a strategic position in integrating local wisdom to build the character of the Indonesian people is social studies. According to Rahmad [2], social studies aims to realize an intelligent society. The students can explore, study, and examine the social problems around them.

The subject of social studies in 4th-grade elementary school wasn't optimal, and concept understanding of social studies was relatively low. The preliminary study result of conceptual knowledge of 4th-grade students showed that the average value is 51.24 in Public Primary School number 1 Kedungsarimulyo. Only four students pass the test, with 18% of 22 students. While students in 4th grade of Public Primary School number 2 Kedungsarimulyo obtained an average of 56.29 with a pass test percentage is 19%. So it can be concluded that the student's concept understanding was low.

Students' understanding of material needs to be increased because concept understanding is an important aspect of learning [3]. Suprijono [4] stated that conceptual understanding is an act of understanding pre-existing categories or concepts. With concept understanding, students can explain material easily using their own language. According to the observation result of the learning process, that problems were the learning tended to be bored and students were less interested during the learning process. That was because the learning model used was less innovative. Teachers usually use the conventional learning model [5]. Even though during the pandemic, learning innovation is needed that is suitable with online and face-to-face learning. Besides that, the learning didn't integrate with local wisdom.

Researchers concluded that a blended learning model based on Jepara's local wisdom is needed to solve the increasing concept understanding of social subjects. Blended learning is learning that combines traditional learning and distance learning [6]. The blended learning model integrated with local wisdom aims to make students interested in learning. According to Piaget, elementary school children are in the concrete operational stage of child development [7]. It causes students at the elementary school to be more receptive to the material if it is associated with local wisdom. Rahadini & Fitriana [8] stated that local wisdom is an important element that students must know and learn in a region.

This research is relevant to the research done by Supandi et al. [9] that the different cultures in every region are the main challenges in applying blended learning. Their research showed that blended learning based on local wisdom effectively increased learning outcomes with trigonometry subject matter. Nugraha, Astawa, & Ardana [10] did another research, proved that the blended learning model has an effect in increasing the ability of conceptual understanding and the fluency of mathematical procedures. The hypothesis testing result with MANOVA test, sig 5%, was 0.010 (p-value).

The research result done by Simonova [11] showed that blended learning could be applied in English learning with grammar material. Meanwhile, Hamka & Noverta [12] did the developmental research of blended learning media based on Edmodo in basic physics subject matter. That research

result was worthiness with validation 86% of the material, 85% of media, and 79% of expert review test. Susilawati [13] developed a blended learning model in Citizenship Education subject matter. The blended learning model gave the solving alternative of learning difficulties, and there was the availability of learning sources for students.

According to the explanation above, the researcher developed a blended learning model based on Jepara's local wisdom. With this learning model development, social studies subject matter was optimal and can increase concept understanding of social studies.

Conceptual framework. Stein & Charles [14] defined blended learning as the combination of onsite and online learning to produce effective, efficient, and flexible learning. Salma, Basori, & Puspanda [15] argued that conventional learning must be combined with technology-based learning to suit the time demand in blended learning. The technology-based learning integration could increase student achievement because students could understand the material well.

The advantages of blended learning, according to Leffler et al. [16] were: a) students get more time to learn, b) students get to benefit from online learning and still have social interaction from face-to-face learning, c) students will understand technology better and can operate it, and d) can increase motivation, responsibility, and discipline for students. Dewi et al. [17] revealed that blended learning is the most effective learning in which students as millennials cannot be separated from their gadgets. Based on the expert opinion, it can be concluded that the blended learning model is a learning model that combines onsite learning and indirect learning.

Jiang, Lizhen, & Lingyu [18] explained that the basic principle of online learning development in elementary and secondary schools is technology-based learning. Cleveland-Innes & Wilton [19] explained that the blended learning model consists of synchronous and asynchronous learning. Synchronous learning is used as face-to-face online learning in online tutorials such as zoom and google meet. Meanwhile, asynchronous learning is used as indirect learning to send media in images, videos or slides presentations, and send assignments. The learning strategy used in this research was problem-based. The syntax of the problem-based blended learning model, according to Aeni, Prihatin, & Utanto [20] includes orientation, organizing, investigation, presentation, and evaluation.

Sulianti, Safitri & Gunawan [21] revealed that local wisdom is the resident's knowledge about a region's culture and natural condition. According to Oktavianti, Zuliana, & Ratnasari [22], the definition of local wisdom is an idea, concept, and thought of local culture that is becoming guide of life for resident. Meanwhile, Saryono [23] defined local wisdom as a pluralistic Indonesian cultural wealth, which is sourced from local culture and is served as a national character educational guide so the students understand their culture and their identity is formed. Based on the expert's definition of local wisdom, the researcher concluded that local wisdom is a set of norms, values, and beliefs used as a guide of life by the resident.

Social studies is a field study that relates to social life and their environment for educational interest and the formation of social actors [24]. The purpose of social studies is students can become good citizens. Social studies at the elementary school level is critical because to supplies students in living social life for future. According to Haris & Jihad [5], the definition of concept understanding is the competence shown by students in understanding concept and carrying out the procedure gracefully, accurately, efficiently, and appropriately. Besides that, Pranata [26] argued that concept understanding is a way, action, and process of understanding the material learning ideas that students identify and know and can re-reveal the concept in the form that is easier to understand and can apply it. Based on the expert opinion above, the researcher concluded that conceptual understanding is a thinking ability to achieve knowledge in different ways that stimulate learning activities.

Carin and Sund in Ahmad Susanto [27] explained that the indicator of conceptual understanding is 1) translating the concept with their language, 2) interpreting the relationship of the concepts, 3) calculating data with involving the concepts, 4) applying knowledge and

understanding in problem-solving of a new situation, 5) analyzing or breaking the concept into parts and demonstrating the relationship of understanding, 6) uniting the ideas into the new forms with their language, and 7) assessing or making the decision based on the facts.

Research objectives. The purpose of this research is 1) discover a learning model that can improve student's conceptual understanding of social studies during the pandemic era, 2) analyze the worthiness of blended learning model based on Jepara's local wisdom, and 3) analyze the effectiveness of blended learning model based on Jepara local wisdom to improve student's conceptual understanding.

Research methods

Research design. The research design used in this research is Research and Development. Research and Development, according to Borg & Gall [28] is a developmental model used to design the new product and procedure in which the product is tested systematically, evaluated, and repaired to qualify the criteria of effective, has a certain quality, or suit the standard. The product improvement trial used a quasi-experiment design with the nonequivalent pretest-posttest control group design approach.

The developmental research procedures of this research, according to Borg & Gall [28] were: 1) research and information collection, 2) planning, 3) develop the early product, 4) preliminary field testing, 5) revise product, 6) main field testing, 7) revise the test result, 8) operational field testing, 9) revise the final product, 10) dissemination.

Respondents of the study. The subjects of this research were the 4th-grade students of Public Primary School number 1 Kedungsarimulyo as the experiment class and the fourth-grade students of Public Primary School number 2 Kedungsarimulyo as the control class. Fourth-grade students of Public Primary School number 1 Kedungsarimulyo consist of 22 students and at Public Primary School number 2 Kedungsarimulyo consist of 21 students. Main field testing was done in the 4th-grade students of Public Primary School number 1 Kalipucang Wetan in the odd semester of 2021/2022 academic year.

The research instrument used an observation guide, interview guide, and concept understanding test. The researchers used the observation guide to observe the learning process occurred in the class. The interview guide was used to obtain data about the actual condition that occurred in the class. The concept understanding tests used by researchers were pretest and posttest, aiming to determine the increase of students' concept understanding after students were taught with a blended learning model based on Jepara's local wisdom [29].

The data analyses were validity and reliability test, worthiness test of learning model and effectiveness test. The worthiness test of the learning model included expert validation and pretest-posttest. The purpose of the effective test was to determine the average difference of concept understanding values between the experimental and control class.

Results

Based on observation and interview in Public Primary School number 1 Kedungsarimulyo, it were found that online learning was done by teacher using whatsapp group, teacher centered learning, used conventional learning model. The learning model had not been able to increase student's concept understanding. In social studies, students were teached using blended learning model, but never linked with local wisdom [30]. So the Development of a blended learning model based on Jepara's local wisdom was needed to increase students' concept understanding of social studies.

The development design of this learning model were planning, process, and evaluation. The planning stage includes determining the purpose, materials, model, media, and compiled supporting device. The process stage included a) the syntax of blended learning model based on Jepara's local

wisdom that consist of synchronous and asynchronous learning, and b) learning media used digital video media. In the evaluation stage, students taken a test of concept understanding.

Two learning expert validators validated the worthiness of this learning model. The validation results can be seen in Table 1 below.

Table 1 – Learning model worthiness results

No.	Aspect	Worthiness Result	
		Expert 1	Expert 2
1.	Design of learning model	15	14
2.	Learning device components	9	12
3.	Contents	8	7
4.	Guidebook of learning model development	19	24
	Quantity	51	57
	Score	79,69	89,06
	Criteria	Worthy	Very worthy
	Average Score	84,375	
	Criteria	Very worthy	

Based on the table above, expert 1 gave 79,69 and expert 2 gave 89,06. It can be concluded that the Development of learning model got an average score of 84,375 with very worthy criteria. The advice from expert 1 were adding the library sources and literature review in guidebook. Meanwhile, expert 2 improved the layout and typos in guidebook.

Table 2 – Concept understanding improvement recapitulation

Class	Average		N-Gain
	Pretest	*Posttest*	
Experiment	55,11	76,95	0,49
Control	53,74	69,39	0,34

Based on Table 2, experiment class got an average pretest of 55.11 and after being treated, there was an increase with an average posttest of 76,95. The improvement value of experiment class was 0.49, and control class was 0.34. Therefore, the concept understanding of experiment class has a higher improvement than the concept understanding of control class. The effectiveness of learning model was seen from the analysis of student's concept understanding using written test in the form of essay. Prerequisite test before the effectiveness test were normality test and homogeneity test.

Table 3 – Normality test result

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Posttest of Experiment Class	.183	21	.064	.917	21	.077
Posttest of Control Class	.178	21	.082	.926	21	.113

Based on Table 3, sig value of experiment class was 0.064 and 0.082 for control class. Because both sig values were more than 0.05, post-tests of the experiment and control class had normal distribution.

Table 4 – Homogeneity test result

Test of Homogeneity of Variances		Levene Statistic	df1	df2	Sig.
Posttest Score	Based on Mean	.641	1	41	.428
	Based on Median	.551	1	41	.462
	Based on Median and with adjusted df	.551	1	40.999	.462
	Based on trimmed mean	.551	1	41	.462

Table 4 showed that sig value was 0.428. Because 0.428 > 0.05, it was concluded that the posttest score of the experiment and control class was homogeneous. Next, the author did t $_{test}$ with two independent sample t-test: the left-hand test.

Table 5 – t-test result

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means							
										95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Posttest score of concept understanding	Equal variances assumed	.641	.428	2.174	41	.036	7.64589	3.51725	.54266	14.74911
	Equal variances not assumed			2.168	39.902	.036	7.64589	3.52720	.51660	14.77517

Based on Table 5 above, Sig. 2-tailed value = 0.036. P-value = $\frac{1}{2}$ x 0,036 = 0,018. Because P-value $\leq$ 0,025, so it can be concluded that the concept understanding average of the social subject in experiment class is better than in control class. A blended learning model based on Jepara's local wisdom had proven effective in increasing the concept understanding of social studies in class IV.

Discussion

Based on observation and interview results at the research and information gathering stage, online learning still found problems: learning only using WhatsApp group, social studies was not optimal, and teacher-centered learning. So students were less interested in learning and the learning tended to be boring. This result was supported by the research result done by Rahim, Fakhriyah, & Ismaya [31] that four of six students in Jepara were not ready to do online learning.

The learning model that teachers used during online learning was the blended learning model. However, after conducting a preliminary study of concept understanding, students' conceptual understanding of social science was low. This can be innovated with developing blended learning model. Blended learning that was developed in this study was integrated with local wisdom. Fathurohman et al. [32] explained that applying education in the technology-based 4.0 era was better integrating local wisdom as the specialty that had value in life.

Social studies with blended learning model based on local wisdom became an exciting and meaningful learning innovation for students, because the learning was contextually linked to student experiences. This statement was supposed by Permana & Sujana's opinion [33] which said that

social studies was expected to use contextual approach so the students knew the real problems in society's live and can solve these problems in the future. From 10 steps stated by Borg & Gall [28], the design for developing blended learning model based on Jepara's local wisdom is simplified into 4 stages: preliminary studies, model validation development, field testing, and dissemination. The activities in preliminary studies were rational, purpose, target, development procedure, model design development stage, product development, guidebook, implementation step, model limitation, and model evaluation.

After conducting the preliminary study, it produced a hypothetical model. In the model validation development stage, the hypothetical model is validated by experts and gave suggestions. After that, the learning model was revised. In field testing stage, the learning model is carried out main field testing and operational field testing. The final model will then be disseminated through seminar, journal, and socialized to teachers. The learning media that was developed in this learning model was learning video. Video used in blended learning can increase concept understanding and curiosity because video can visualize problems more realistically [34]. This research used six videos that contained stories and figures in Jepara, namely Kalingga Kingdom, Sosrokartono, R.A. Kartini, Ratu Kalinyamat, Sultan Hadlirin, and Cipto Mangunkusumo.

The syntax of blended learning model based on Jepara's local wisdom were begun with asynchronous learning that consisted of orientation and organizing stages, followed by synchronous learning consisting of investigation and presentation stages, and ended with asynchronous learning with evaluation stage. Synchronous and asynchronous learning were the right solution in online learning during the pandemic [35]. Synchronous and asynchronous became the right solution because the learning combined face-to-face learning and indirect learning. Asynchronous learning was carried out through WhatsApp group, and asynchronous learning was done using zoom. Learning that connected with students' daily lives and used zoom application can increase concept understanding [36]. An evaluation was carried out with teacher send a question link. The pretest result showed that only 2 of 22 students in experiment class were declared complete and only 1 student was completed in control class. The average score of pretest value in experiment class was 55.11 and control class was 53.74. In the posttest result, experiment class obtained the average score of 76.95 with 20 students were completed and the average score of control class was 69.39 with 16 students completed.

The result of the N-gain calculation was that the experiment class got 0.49 and the control class obtained 0.34. This showed that concept understanding value of social studies in experiment class that was teached using blended learning model based on Jepara's local wisdom was better than control class that was teached using conventional learning. This research result was in accordance with Trisnayanti, Sariyasa, & Gede's research [37] that the blended learning model positively impacted concept understanding.

The posttest score of experiment and control class had normal distribution and homogeneous. The next step was t test. The result showed that sig 2-tailed value obtained 0.036 with p-value 0.018. Because $0.018 < 0.025$, it can be concluded that the average value of concept understanding in experiment class was better than the average value of concept understanding in control class. This was in accordance with the research result of Nafisah [38], which showed a significant difference between students who were taught using blended learning and students who were taught using conventional learning. Blended learning was more effective in increasing concept understanding than conventional learning [39].

Therefore, the final product of blended learning model based on Jepara's local wisdom development to increase concept understanding of social studies can be used in learning. Students were interested in online learning and easy to understand the material concept because learning was interesting and it was integrated with Jepara's local wisdom.

Conclusions and recommendations

According to the need analysis results through observation and interview, the development of a blended learning model based on Jepara's local wisdom was needed to increase the concept understanding of social studies in 4th grade. This blended learning model was approved valid and worthy to be used. Expert 1 gave score of 79.69 with worthy criteria and expert 2 gave score of 89.06 with very worthy criteria. This model also had proven effective in increasing the concept understanding of social studies. It can be seen from t-test result which got sig 2-tailed value of 0.036 and p-value = 0.018 < 0,025.

Recommendation for teachers, they should be able to take advantage of the learning model developed and can use properly. This study is expected to be learning innovation to reach the learning purpose effectively. For further researchers, they can develop the further research about the Development of blended learning model based on local wisdom.

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