Development of Local Wisdom-Based Blended Learning Programs to Improve Students' Learning Outcomes and Communication Skills

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Abstract: Development of Local Wisdom-Based Blended Learning Programs to Improve Students' Learning Outcomes and Communication Skills. Objectives: This study aimed to develop a blended learning program based on local wisdom for improving students' learning outcomes and communication skills. **Methods**: This development research was adapted from Dick and Carey, namely ADDIE. This study used data analysis techniques to convert quantitative data to qualitative data. **Findings**: All developed products got a score in valid category and practically category. The learning outcomes in the cognitive domain can be seen from the N-gain value of 0.71; it is enough effective category. The learning outcomes of the affective domains achieved the KKM score of 84% and the students who were incomplete of 16%. Students' communication skills average percentage scores on indicators of voice clarity 81%, writing clarity 74%, grammar 75%, performance 73%, expression 79%, and gestures 81%. **Conclusion**: The results of blended learning programs based on local wisdom can improve students' learning outcomes and communication skills.

Keywords: Development, blended learning, local wisdom, learning outcomes, communication skills

Abstrak: Pengembangan Program Pembelajaran Blended Learning Berbasis Kearifan lokal untuk Meningkatkan hasil belajar dan Keterampilan komunikasi Peserta Didik. Tujuan: Penelitian ini bertujuan untuk mengembangkan program pembelajaran blended learning berbasis kearifan lokal untuk meningkatkan hasil belajar dan keterampilan komunikasi peserta didik , Metode: Penelitian pengembangan ini mengikuti langkah dari Dick and Carey yaitu ADDIE. Teknik analisis data yang digunakan konversi data kuantitatif-kualitatif Temuan: Seluruh produk yang dikembangkan mendapat skor dengan kategori sangat valid dan praktis. Hasil belajar ranah afektif yang mencapai nilai KKM sebanyak 84% dan yang tidak tuntas sebanyak 16%. Hasil nilai rata- rata keterampilan komunikasi pada indikator kejelasan suara 81%, kejelasan tulisan 74%, tata bahasa 75%, penampilan 73%, ekspresi 79% dan gestur 81%.,dan Kesimpulan: Hasil pengembangan program pembelajaran blended learning berbasis kearifan lokal dapat meningkatkan hasil belajar dan keterampilan komunikasi siswa.

Kata kunci: Pengembangan, blended Learning, Kearifan Lokal, Hasil Belajar, Keterampilan Komunikasi

To cite this article:

■ **INTRODUCTION**

During the Covid-19 pandemic, the education system did not run as usual. Based on the policy SE No. 4 of 2020, the education system is enforced from home or online learning. However, online learning is a new thing for Indonesia's education system. According to (Putri et al., 2020), online learning raises new problems: the lack of adequate facilities, the teachers' difficulty developing and delivering material, and students' difficulty understanding the material.

In the Covid-19 pandemic era, teachers must innovate and be skilled in digital literacy. It makes students interested, not feel bored, and success in education. This success is supported by various aspects, including teachers' need to make multiple innovative breakthroughs in media, methods, and learning models to achieve the expected educational goals. It makes students understand the material easily, and the learning is fun. Students are active and interactive with each other. Teachers must choose a variety of strategies, methods, and models. One of the learning models that can make students active and interactive is the blended learning model. Blended learning model combines offline and online systems (Malczyk, 2019). The blended learning model can increase students' activity and creativity (Kundu et al., 2020). Besides, blended learning can improve learning outcomes (Edward et al., 2019) and communication skills (Maulida et al., 2021).

In online learning, the teachers should provide interesting learning materials. Based on attachment IV of the Minister of Education and Culture Number 81A of 2013, interesting learning material in elementary schools is carried out thematically. It combines subjects to develop attitudes, skills, knowledge, and local cultural diversity. Therefore, teaching material needs to be developed by linking local wisdom to make students know various local cultures. According to (Pornpimon et al.,2014), implementing local wisdom is important to improve students' awareness in the community. In addition, learning based on local knowledge can improve students' learning outcomes (Toharudin & Kurniawan, 2019).

Based on the results of preliminary observation, the researcher found that during the Covid-19 pandemic, students were less skilled in communicating and their learning outcomes decreased. Students were incomplete mastery of the material, impaired access to online learning at home, and lacked teacher ability to develop learning models. It made students feel bored. (Anugrahana, 2020) researched that many students experience boredom during learning online. Students did not communicate with teachers or their friends. It is necessary to develop students' communication skills in the learning process. Students' communication skills and learning outcomes need to be improved. In the COVID-19 pandemic era, teachers can create programs that support the learning process by creating or innovating through the introduction of local wisdom in their area (Dewi et al., 2017). Individuals equipped with communication skills are expected to have an entrepreneurial spirit by raising local wisdom in their area to face a modern future.

A previous study is conducted by (Edward et al., 2019). He found blended learning can improve students' learning outcomes in the cognitive domain. Another study on blended learning is conducted by (Maulida et al., 2021). They stated that blended learning can improve communication skills. Besides, (Fatchurahman et al., 2021) found that blended learning effectively improves soft communication skills.

Moreover, (Shofa et al., 2021) developed local wisdom-based learning. The results of their research that local wisdom-based learning can improve student learning outcomes. The different

results of the research conducted by (Lyesmaya et al., 2020). The local wisdom-based learning is ineffective to improve students' communication skills, responsibility, reading literacy and writing experience. A similar study is conducted by (Rokayah and Rochman, 2019). They found that the implementation of local wisdom-based learning can improve students' social literacy. Social literacy is closely related to communication skills.

However, those previous studies have not compared blended learning and local wisdom in improving learning outcomes and communication skills. Therefore, the researcher developed a blended learning program based on local wisdom to improve students' learning outcomes and communication skills. It is to fill this gap. The products developed in the blended learning program based on local wisdom are guide books, teaching materials, media, learning implementation plans, and learning evaluations based on local wisdom of Rawa Pening, Semarang Regency.

■ METHODS

Research Design and Procedures

This study used Research and Development (RnD) design by Dick and Carey, namely ADDIE (Analysis, Design, Development, Implementation dan Evaluation) (Muruganantham, 2015). The research procedures were as follows: At the analysis stage, the researcher visited the school and interviewed the teachers regarding the problems faced in the learning process. Besides, the researcher conducted a literature study related to the needs analysis results. In the Design stage, the researcher compiled a blended learning program based on local wisdom that focused on grade 4, *Tema 8 Daerah Tempat Tinggalku Subtema 2 Keunikan Daerah Tempat Tinggalku Pembelajaran 4*.

In the development stage, several experts validated the blended learning program based on local wisdom. In the implementation stage, the researcher conducted a limited trial to determine the practicality and a wide trial to determine the effectiveness. In the evaluation stage, several experts analysed the quality of blended learning programs based on local wisdom. The study was conducted from September 2021-February 2022.

Participants

The research participants were 4th-grade teachers at SDN Samban 01, SDN Samban 02, SDN Poncoruso. Besides, 15 students of Grade 5 at SDN Samban 01 for the limited trial and 25 students of grade 4 for the wide trial. Cognitive test was conducted at SDN Samban 02 that consisted of 24 students.

Data Collecting Techniques

Data collection techniques in this study can be seen in the following table:

Table 1. Data collection techniques

No	Data	Data Collection	Data Source
1	The Need of analysis	Interview	Class 4 teacher at SDN Poncoruso, SDN Samban 01, SDN Samban 02.
2	Validity, reliability, discriminatory power, and test level of difficulty	Test	24 students 5th grade at SDN Samban 02
3	Product validity test	Instruments	Lecturer, Teacher, and School Supervisors

4	Practicality test	Limited Trial:	Teacher and 15 students of class 5
		1. Teachers' Response Questionnaire	SDN Samban 01
		2. Students' Response Questionnaire	
5	Test effectiveness	Extensive Trial:	25 students 4th grade at SDN
		1. Students' response questionnaire	Samban 01
		2. Students' learning outcomes: self-assessment questionnaires, tests, observation of communication skills.	

Data Analysis Technique

The product's validity is developed by calculating the score. It was obtained from the expert. Besides, the cognitive is tested first to determine the level of validity, reliability, difficulty, and discriminating power. Furthermore, the product's practicality was obtained from the questionnaire responses of teachers and students. Then, the score of validity and practicality of the product was converted from quantitative to qualitative data referring to the categorization of assessment (Azwar, 2015). The criteria for converting quantitative to qualitative data can be seen as follows.

Table 2. Criteria for converting quantitative data to qualitative data

Interval Skor	Score	Category
$(M + 1,50_S) > X$	A	Very Valid/Very Practical
$(M + 0,50_S) < X \leq (M + 1,50_S)$	B	Valid/Practical
$(M - 0,50_S) < X \leq (M + 0,50_S)$	C	Enough Valid/ Enough Practical
$(M - 1,50_S) < X \leq (M - 0,50_S)$	D	Less Valid/ Less Practical
$X \leq (M - 1,50_S)$	E	Invalid/ Impractical

Note:

M : Mean ideal score, ½ (Ideal maximum score – Ideal minimum score).

S : Standard ideal deviation, 1/6 (Ideal maximum score – Ideal minimum score).

X : Total score

Product effectiveness was obtained from students' appreciation questionnaires, cognitive domain assessments, affective domain assessments, and communication skills assessments. Students' appreciation questionnaire score was converted from quantitative to qualitative data.

The cognitive domain assessment data is tested first. The students' pretest- posttest are tested for the normality of the data. Then, the pretest-posttest of cognitive domain is tested using N-Gain test (Hake and Richard, 1999).

The criteria for the N-Gain score are divided into three criteria. g<30 is Low, 30<70 is Medium, and g>70 is Hight.

The N-Gain's effectiveness is interpreted to improve learning outcomes in the cognitive domain. It is described as follow:

Table 3. Category Interpretation of N-Gain Effectiveness

Percentage (%)	Interpretation
<40	Ineffective
40-55	Less Effective
56-75	Enough Effective
>76	Effective

The affective and psychomotor domains are assessed using the formula as follows:

$$NA: \frac{Score\ Obtained}{Max\ Score} X100$$

The students' score is complete if they reach a complete score (KKM 70). In this study, the percentage's complete criteria are 75%. The results of the percentage calculation are classified $80\%<X<100\%$ are very good, $60\%<X<80\%$ are good, $40\%<X<60\%$ are medium, $20\%<X<40\%$ are not good, and $0\%<X<20\%$ are very less good (Wahyuni & Sudarma, 2018).

■ **RESULT AND DISCUSSIONS**
Analysis

Based on the result interview, the teachers of 4 and 5 grades stated that all classes were carried out online during the pandemic by integrating social media in Whatsapp, Zoom/ Gmeet, and Youtube. Besides, online learning influences students' learning outcomes. The weekly test scores of many students had not been completed. In line with this study conducted by (Anugrahana, 2020). He stated that students' learning outcomes decreased because they answered random questions. This was because in online learning, students lacked supervision.

Besides, students were less skilled in communication. It is due to the limited and reduced space and time in learning. Students were also lack confidence in collecting project videos as tasks that must be fulfilled during online learning. In line with this study conducted by

(Putri et al., 2020). He found that students lose social time with teachers and friends in online learning. Students must have communication skills. It becomes students ready to be competitive in the 21st century (Dewi et al., 2017).

Moreover, the school already had adequate technological facilities such as laptops, tablets, and LCDs. Each student had a smartphone, and the school's Wi-Fi facilities were adequate. However, these infrastructure facilities are rarely used in the learning process. This 21st-century learning should take advantage of technology and communication. This is under Permendikbud N0.22 of 2016, which states 14 principles of learning, one of which is learning to use technology and communication.

The teaching materials is used only thematic books. The Ministry of Education and Culture publishes it, and teachers had never developed teaching materials based on local wisdom found in the areas where students live. Local wisdom can make life more meaningful and encourage students to solve life problems (Dewi et al., 2017). Besides, learning based on local wisdom can prepare students to compete nationally and globally by creating or innovating in the economic, social, and cultural fields by promoting local wisdom in their area.

The researcher also conducted a literature study by reviewing previous studies and relevant studies. Based on the analysis results, the researcher developed a blended learning program based on the local wisdom of Rawa Pening, Semarang Regency.

Design

In this stage, the researcher developed a blended learning program based on local wisdom and research instrument was focused on grade 4, *Tema 8 Daerah Tempat Tinggalku Subtema 2 Keunikan Daerah Tempat Tinggalku Pembelajaran 4*. The resulting device was a guidebook for implementing a blended learning

program based on local wisdom, teaching material, media, lesson plan, and learning evaluation. The guidebook components for implementing blended learning programs based on local wisdom that must exist in the book include background, theoretical basis, steps for implementing learning programs, lesson plan, teaching material, learning evaluation.

The teaching material design was made based on local wisdom in Rawa Pening. The teaching material's components are Core Competencies, Basic Competencies, Indicators, Objectives, Sources, and pictures arranged based on the contents of material sources. It was developed independently based on the local wisdom in Rawa Pening then arranged on teaching material, providing interesting media images. The discussion was about economic activities in the Rawa Pening area, fictional stories about Rawa Pening, and individual characteristics.

The media design was compiled through several stages, namely analyzing the Core Competencies and Basic Competencies of the researcher, making indicators and learning objectives, making the next material according to the next step compiled in PowerPoint. The media has created the material only at a glance, and in general, this is information so that students find out more independently.

The RPP design (Lesson Plan) consisted of identity, Core Competencies, Basic Competencies, Indicators, Materials, Approaches, Models, Methods, Media, Learning Resources, Objectives, Learning Activities, Assessment, and LKPD learning evaluation. The LKPD learning evaluation evaluated the Cognitive, affective, and psychomotor domains.

The design of Cognitive evaluation was based on basic competencies and indicators. They were compiled into question indicators. The questions were made consist of cognitive levels C3-C6. The effective evaluation used the self-assessment technique. Students were asked to fill out a self-assessment questionnaire by checking the statements that were appropriate to their circumstances. Besides, the psychomotor evaluation used observation techniques. The focus of skills assessment is seen from the students' communication skills. Students' communication indicators refer to verbal communication such as voice clarity, writing clarity, grammar, and nonverbal communication, including performance, facial expressions, and gestures.

All design components of the blended learning program based on local wisdom were developed linking local wisdom in Rawa Pening, such as legend stories and local community activities. This design is in line with the development study conducted by (Kristanto et al., 2019). They found that local wisdom-based learning is necessary to correlate the local situation and socio-cultural.

Development

The experts validated the research instruments and local wisdom-based blended learning program tools in the development stage. They assessed, corrected, and suggested some points to the local wisdom-based blended learning programs. Research instruments and products of blended learning programs based on local wisdom were validated by Lecturers, Teachers, and School Supervisors. Several experts in their respective fields validated the blended learning program based on local wisdom. According to experts, the results of blended learning- on local wisdom validation can be used with minor revisions.

The assessment instrument of the program guidebook consisted of 12 items with a maximum score of 60. Besides, data shows the total validity score of the program guidebook of 66. It can be concluded that the developed guidebook is valid criteria and suitable to implement. The teaching material validation used an assessment sheet of validity assessed as worthy of collecting the data. The validation results of the program guidebook and learning material are presented as follows.

Table 4. The Score and Criteria of Validity Assessment Program Guidebook and learning Material Result

No	The Aspects of Assessment Indicators	Program guidebook validation score	Validity score of teaching material
1	Product Display Design	19	18
2	Visual Communication	8	15
3	Literatur Review	14	-
4	Learning Component	25	-
5	Ingredient	-	10
6	Contents	-	15
	Total Score	**66**	**58**

The validation instrument of the program guidebook consisted of 14 items with a maximum score of 70. Based on the data above, the total score of the program guidebook is 66. It can be concluded that the blended learning program guidebook based on local wisdom is a valid criterion. The teaching material instrument had 12 items, with a maximum score of 60. Besides, the total validity score of teaching materials is 58. It can be concluded that the teaching material developed is valid and suitable to implement.

The media assessment instrument had 12 items, with a maximum score of 60. The result of appearance got a score of 20, function and benefit got a score of 23, contents got a score of 13, and the total score was 56. It can be concluded that the media developed is valid and suitable to implement. Besides, The RPP assessment instrument had 15 items, with a maximum score of 75. The result of indicator formula got a score of 10, objectives got a score of 10, the material got a score of 14, media got a score of 4, learning activities got a score of 18, assessment instrument got a score of 12, and the total score was 68. It can be concluded that the RPP developed is valid criteria and suitable to implement.

Furthermore, the result of the learning evaluation instruments, including the affective (A), cognitive (C), and communication skills (P). Each instrument expert assessment instrument (A), (C),

and (P) there were 10 items, with an ideal maximum score of 50. The results of an assessment instrument (A) were clarity got a score of 19, content accuracy got a score of 4, relevance got a score of 9, language accuracy got a score of 15, and the total score was 47. The results of an assessment instrument (C) were clarity got a score of 17, content accuracy got a score of 4, relevance got a score of 8, language accuracy got a score of 13, and the total score was 42. The results of an assessment instrument (P) were clarity got a score of 18, content accuracy got a score of 5, relevance got a score of 8, language accuracy got a score of 15, and the total score was 46. Therefore, the expert judgment concluded that the learning evaluation instrument was valid and suitable to implement.

Experts assessed the cognitive domain learning outcomes instrument and the trial to determine the validity, reliability, level of difficulty, and discriminating power. The number of items were 15 questions with 24 respondents, so the rtable is 0.404. The rcount of all questions is 0.502. It can be concluded that rcount > rtable means that all of the questions are valid. In the reliability test, the value is 0.819. The question had very high reliability if $0.80 < r11d"1.00$, which means the question is declared reliable. The questions' difficulty level is ranged from 0.542-0.667. The question is moderate criteria, with a

0.3 P 0.7 and moderate difficulty. The difference in power of 14 questions got a score from 0.417-0.667, and 1 item got a score of 0.75. Discriminatory power is declared good if the value is 0.41-0.70, and the item has an extreme discriminatory power if the value is 0.71-1.00. It can be concluded that 14 questions are declared to have good distinguishing power and 1 item of very strong discriminating power.

Implementation and Evaluation

The next step is implementation. The researcher implemented a development program in class IV, *Tema 8 Daerah Tempat Tinggalku Subtema 2 Keunikan Daerah Tempat Tinggalku Pembelajaran 4* at SDN Samban 01. The trial was conducted in a limited group. It consisted of 15 students in grade 5. It is to determine the practicality of the product. Accordinng to Supriyanto et al. (2020), a limited trial was conducted to determine the product's practicality. The practicality of the teacher's response in the limited-scale trial got a score of 46 with an interval of X > 40.5, and the practicality score of the students got 8.3 with an interval score of X > 7.4 then the Blended Learning learning program based on local wisdom was declared very practical.

After conducting a limited group trial, the researcher tested in a wide group in grade 4 of 25 students. It is to determine its effectiveness. The questionnaire of students' responses was used to measure effectiveness and the score is 42.92, with an interval of X > 40.5 which means it is categorized as very effective. The measurement results are under the guidelines for converting quantitative data to qualitative data (Azwar, 2015).

Besides, the questionnaire of students' responses was divided into a pretest and posttest. It was to determine the effectiveness of cognitive learning outcomes. The results of peretest before using the local wisdom-based blended learning
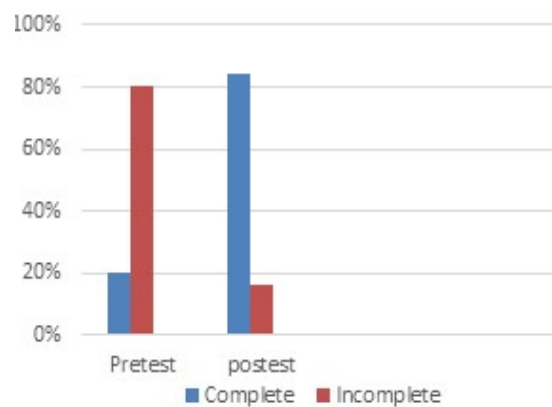
program are showed in the graph below.

Figure 1. The results of pretest-posttest cognitive

Besides, before using the local wisdom-based blended learning program, the pretest results of 25 students who achieved the KKM score were 5 students (20%), with a mean score of 53. Students who had not completed were 20 students (80%), with a mean score of 76. Besides, the results of posttest showed that 25 students achieved completeness, 21 students (84%), with a mean score of 90, while students who had not completed were 4 students (16%), with a mean score of 67.

The pretest and posttest normality tests were tested using Kolmogorov-Smirnov with the Microsoft Excel application tool. The pretest result showed that 0.176 is greater than 0.05, which means the data was distributed normally. Posttest data showed 0.196 is greater than 0.05, which means the data was distributed normally. To determine the level of effectiveness, the researcher used the N-gain test by measuring the average pretest and posttest of 25 students in class 4. The mean score of the pretest is 58 and the posttest is 86. It concluded that the increase in N-gain is 0.71 with enough effective category.

The effectiveness of learning outcomes in the affective domain is searched for the percentage of completeness comparisons that can be seen in

the following graph:

Figure 2. The effectiveness results of affective

Students who achieve the KKM score are 84%, and those who do not complete are 16%. Based on the percentage of completeness, it can be concluded that the blended learning program based on local wisdom is very good for improving learning outcomes in the affective domain. The incompleteness of learning outcomes in the cognitive domain can be influenced because students do not understand the material when studying independently at home. Some students do not have an internet quota when studying at home, so they cannot dig up more information independently. This is in line with (Keskin & Yurdugül, 2020) research. They found that the readiness of online independent learning facilities can affect students' motivation and learning outcomes in the cognitive domain. In addition, some students were not present in the zoom. This is one of the factors that students do not understand the instructions given by the teacher. Besides, (Susilowati et al., 2022) stated some students are not involved in online classes. Students do not realize that they have to be involved in online classes and do not have clear learning targets.

The effectiveness of learning outcomes in communication can be seen in the following graph.
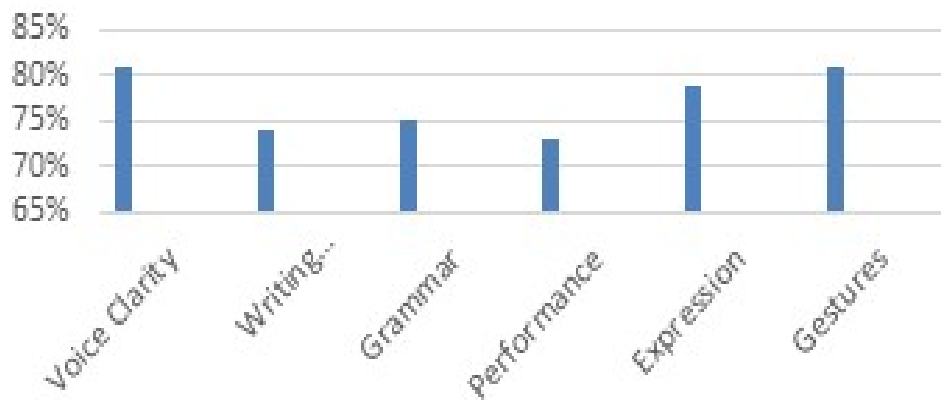

Figure 3. The effectiveness results of communication skills

Based on the graph above, students' communication skills average percentage scores on indicators of voice clarity 81%, writing clarity 74%, grammar 75%, performance 73%, expression 79%, and gestures 81%. It can be concluded that the blended learning program based on local wisdom is good for improving students' communication skills. Based on those indicators of communication skills, the lowest percentage is appearance. Students were asked to express their opinions look not confident and looking anxious. Lack of student self-confidence can make students' communication skills less good. In line with the opinion of (Asiyah et al.,

2019). They found that if the self-confidence is low, students will have doubts and produce low ratings of themselves in communicating with others.

■ **CONCLUSIONS**

The explanation above concluded that developing a blended learning program based on local wisdom improves students' learning outcomes and communication skills in class IV *Tema 8 Daerah Tempat Tinggalku Subtema 2 Keunikan Daerah Tempat Tinggalku Pembelajaran 4* is suitable to implement. Besides, the validator considered the local wisdom-based blended learning tools, namely guidebooks for implementing blended learning programs based on local wisdom, teaching materials, media, lesson plans, and learning evaluations. Several expert validators scored the program manual of 66; it is a valid category.

The validator of teaching material gave a score of 58; it is a valid category. The validator of media gave a score of 56; it is a valid category. The lesson plan's validator gave a score of 68; it is a valid category. The validator of the evaluation learning outcomes instrument gave a score of 47; it is a valid category. The practicality of the teacher's response in the limited-scale trial was 46, with an interval of $X > 40.5$. The practicality score of the students is 8.3, with an interval score of $X > 7.4$; it is declared very practical. The program's effectiveness was assessed by students using a response questionnaire on a wide-scale test. The mean score of this program is 42.92 with an interval of $X > 40.5$; it is categorized as very effective.

Besides, the effectiveness response questionnaire to improve learning outcomes in the cognitive domain can be seen from the mean N-gain value of 0.71; it is enough effective category. The affective domain students' learning outcomes after implementing a blended learning program based on local wisdom achieved the KKM score

of 84% and the students did not complete it as much as 16%. The percentage of completeness concluded that the blended learning program based on local wisdom improved learning outcomes of the affective domain. Students' communication skills average percentage scores on indicators of voice clarity 81%, writing clarity 74%, grammar 75%, performance 73%, expression 79%, and gestures 81%. It can be concluded that the blended learning program based on local wisdom is good for improving students' communication skills.

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