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Effectiveness of Innovation Blended Learning Model to Improve Students' High Order Thinking Skills and Ecological Awareness

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ABSTRACT

Learning during the COVID-19 pandemic tends to be less developed students' skills. Based on the facts, many elementary school teachers in South Kalimantan are experiencing difficulties because there are limited models and strategies to implement online learning. This reason encourages developing the innovation blended learning model. Innovation on this study is the the product of developing blended learning model with the syntax are Group, Analysis, Work Together, Inform, Solve the problem on outdoor, Actualization of solution, Battle games, Unity on role play, Manage conclusion and Invent the creation (GAWI SABUMI). The purpose of this study is to produce a new learning model and find out the effectiveness of the GAWI SABUMI learning model to improve the ecological awareness and high order thinking skills of elementary school students in Banjarmasin. This study used the type of research and development consisted of three phases to find the effectiveness of the model on the dependent variable through the quasi-experimental research. The study sample was 40 students on an elementary school in Banjarmasin. The result of quality evaluation of the blended learning model GAWI SABUMI was at a high level ($X = 4.62$) ($SD = 0.14$). Students had post-test learning skills scores higher than pre-test at .01 level of significance which means that the GAWI SABUMI model meets the criteria of being valid, reliable, and feasible to be implemented and potential to improve students' high order thinking skills and ecological awareness.

Keywords: Ecological Awareness, Elementary School Students, *GAWI SABUMI*, High Order Thinking Skills, Learning Model

1. Introduction

The learning process in the industrial revolution 4.0 era requires learning activities that lead to the development of higher-order thinking skills consisting of critical thinking, problem-solving, creative thinking, communication, collaboration, analytical thinking, and logical thinking (Arifuddin, 2020; Metro, 2015; Yanuardi, Hartoyo, & Nursangaji, 2018). The development of these skills requires the cooperation of teachers, principals, and parents. Future human resources will face challenges in developing information and technology literacy skills, critical thinking skills and creative thinking, communication, and collaboration (Agusta & Noorhapizah, 2020; Noorhapizah, Akhmad, & Pratiwi, 2021; Sholiah, Saefudin, & Priyandoko, 2020; Suriansyah, Riandy, & Setiawan, 2021). On the other hand, the main components in 21st-century learning are skills, knowledge, metacognition, and character. We must be committed to designing learning activities that develop these skills so that learning outcomes are not only oriented towards cognitive skills.

The most important skill developed since elementary school age is critical thinking. If students have this skill, they can think deeply and structured and dare to speak the truth and evaluate things from various perspectives. These skills will help a person make the right and best decisions in his life (Agusta & Noorhapizah, 2020; Agusta & Sa, 2021; Noorhapizah, Agusta, & Pratiwi, 2020; Subarkah & Winayah, 2015).

Another important skill for the young generation to have is creative thinking. Someone creative will be able to innovate through the development of broad ideas and express opinions and new findings to solve problems in social life, have high curiosity to find the truth of an opinion, even make students able to be open and responsive to different perspectives. Creative thinking is characterized by fluency, flexibility, originality (Ms., Herman, & Dahlan, 2017; Supriatin, Ms, & Boeriswati, 2020; Ülger, 2016; Widiastuti & Putri, 2018).

Skills that support critical and creative thinking are problem-solving. Education today is required to produce elementary school graduates who can solve various problems related to everyday life. Problem-solving skills have an impact on students' ability to think deeply and consider various solutions to a problem to produce fast, precise and accurate solutions (Chaiyama, 2018; Rahmazatullaili, Zubainur, & Munzir, 2017). In addition, students who are trained to think logically and analytically will have the speed and accuracy in solving problems and get used to arguing or communicating with various points of view according to the context of the problem (Agusta & Pratiwi, 2021; Al-Qatawneh, Alsalhi, Eltahir, & Siddig, 2021; Karbono & Retnawati, 2020).

Beside the high order thinking skills, this nation need the young generation who can save the natural resources continuity. It means that, our young generation must have the ecological awareness, so they could wisely use natural resources and preserve their nature for generation to come. Ecological awareness must be developed early, a perfect time for growing environmental concern is an elementary school age. Elementary school students as future generations must have the ability to preserve the environment, so currently learning must contain content on ward issues and students are expected to provide alternative solutions to the problems that are occurring (Gurbuz, Nesirov, & Ozkan, 2021; Maria, Irham, Hartono, & Rahayu Waluyati, 2021; Noorhapizah et al., 2021; Simsar, 2021). The literature review suggest that at present human knowledge of the need for life between man and nature is low, the most societies not understand a high awareness of the obligation to maintain balance and harmony in nature (Albracht, 2019; Gurbuz et al., 2021; Noorhapizah et al., 2021; Peterlin, Dimovski, Meško, & Roblek, 2021; Suriansyah et al., 2021).

However, learning in the 21st century has experienced major obstacles during the Covid-19 pandemic since February 2020. This condition requires elementary school teachers to change the learning paradigm that was originally carried out face-to-face, to online-based learning. Such learning methods should not be an obstacle to the development of skills that are a priority to be developed in the current learning process such as critical thinking skills, creative thinking skills, problem-solving, logical thinking, and analytical thinking (Aizikovitsh-Udi & Amit, 2011; Laely, Subiyanto, Astuti, Sari, & Astiwi, 2020; Ms. et al., 2017).

The need for developing learning models to facilitate skills-oriented learning processes in the era of the industrial revolution 4.0 and students' multiple intelligences is supported by previous research conducted by Agusta & Noorhapizah (2020) that 71.23% of State Elementary School teachers in Banjarmasin City do not know how the concepts and achievement of higher-order thinking skills in the form of critical thinking skills, creative, logical and problem-solving. Furthermore, the same research also revealed that the learning process carried out in the classroom, namely 82.35% of public elementary school teachers in Banjarmasin City had never packaged learning by integrating critical, creative, logical and problem-solving thinking skills. The cause of the facts that occurred is that one of the teachers was never provided with in-depth knowledge of higher-order thinking skills and there were no teaching materials that lead to higher-order thinking skills that made it easier for teachers to carry out the learning process expected in the era of the industrial revolution 4.0. Furthermore, Agusta & Noorhapizah (2020) states that the learning process in one elementary school in Banjarmasin is still knowledge transfer and has not developed student creativity. The same thing was also stated by Suriansyah, Agusta & Setiawan (2020) that elementary schools in the city of Banjarmasin still have not developed student independence in learning. A similar condition was also stated by Noorhapizah, Agusta & Pratiwi (2020) that the learning process at elementary school in Banjarmasin still makes the cognitive domain the main demand.

The results of preliminary observations by researchers in the field starting from February 02 to 26, 2021, found 122 of 150 teachers in Banjarmasin City were still using the lesson plans that were prepared only without paying attention to the achievement of students' higher-order thinking skills in both the design of learning activities and evaluation. 103 of the 150 teachers surveyed have never done learning with a variety of learning models. Specifically, researchers conducted interviews about teachers' knowledge of students' high order thinking skills, 135 persons stated that they did not know in detail and had never developed such high order thinking skills on the learning process using learning models that lead to the development of each student's skills.

Beside that, the results of preliminary observations by researchers, found all of respondent of 150 teachers in Banjarmasin City were never use the learning process to improve students' ecological awareness in both the design of learning activities and evaluation. 131 of the 150 teachers surveyed have never done learning with a variety of ecological awareness learning design. Specifically, researchers conducted interviews about teachers' knowledge of students' ecological awareness, 145 persons stated that they did not know in detail and had never developed student skills based on the indicator of ecological awareness and had never develop the activity based on ecological awareness on the learning process.

The urgency of developing this blended learning model is supported by a similar study which has done by Chaiyama that the 21st-century skills like Critical Thinking and Problem Solving, Creativity and Innovation, Cross-cultural Understanding, Collaboration, Communications, Information, and Media Literacy, Computing and ICT Literacy, Career and Learning self-reliance must develop by the right learning strategy (Chaiyama, 2018, 2019). So, they are developing the blended learning model by using active learning activities to develop learning skills in the 21st century. In another study which has done by Hasan et. al blended learning is needed to develop students' self-study capacity, it potentially promotes the acquisition of critical thinking skills, higher-order thinking, in which the teacher acts as a facilitator of learning (Aguayo, Ruano, & Vallejo, 2021; Hasan, Mursalin, & Odja, 2021).

The urgency to develop students' ecological awareness based on Gurbuz, Nesirov and Ozkan On their research show that the respondent with middle school and university degrees were more conscious of their energy consumption levels. By profession, civil servants, farmers and housewives exerted higher environmental awareness than other groups examined. Finally, the income variable showed that higher-income consumers were more aware of the food, energy, and water consumption related matters (Gurbuz et al., 2021; Yunansah & Herlambang, 2017). in other research that determine whether residents wish to participate or not (PN). Then, we measure residents' degree of willingness to participate (DWP). Residents' environmental awareness has a significant positive effect on whether they wish to PN but has no impact on their DWP. By contrast, residents' environmental knowledge has a significant positive effect on whether they wish to PN and their DWP. The moderating effect shows that residents' environmental knowledge significantly weakens the positive effects of their environmental awareness on whether they wish to PN. Moreover, residents' age, educational level, employment, and place of residence substantially influence their DWP (Gan, Xu, Xu, Xu, & Qiao, 2021). It means that, if we want to make the young generation care and care and have sensitivity to environmental conservation, it must do since elementary school.

Based on this background, this study use the solution innovation blended learning model based on local wisdom that has the potential to develop critical thinking skills, creative thinking, problem-solving, logical thinking, and analytical thinking and also students' ecological awareness amidst social restrictions and interactions between teachers and elementary school students. Innovation on this study is the the product of developing blended learning model with ten syntax. The syntax are Group, Analysis, Work Together, Inform, Solve the problem on outdoor, Actualization of solution, Battle games, Unity on role play, Manage conclusion and Invent the creation. All of the syntax is the description of the acronym GAWI SABUMI.

The objectives of this study were (1) to determine the validity of the GAWI SABUMI blended learning model based on local wisdom so that it is feasible to use; (2) determine the effectiveness of the GAWI SABUMI blended learning model based on local wisdom to improve high order thinking skills and ecological awareness of elementary school students.

2. Methods

Based on the problem to be solved, the research uses study methods in the form of study and development (R & D) or what is known as study and development in the field of education with the 4-D

model, consist of define, design, develop and disseminate. The method on this study is described as follow :

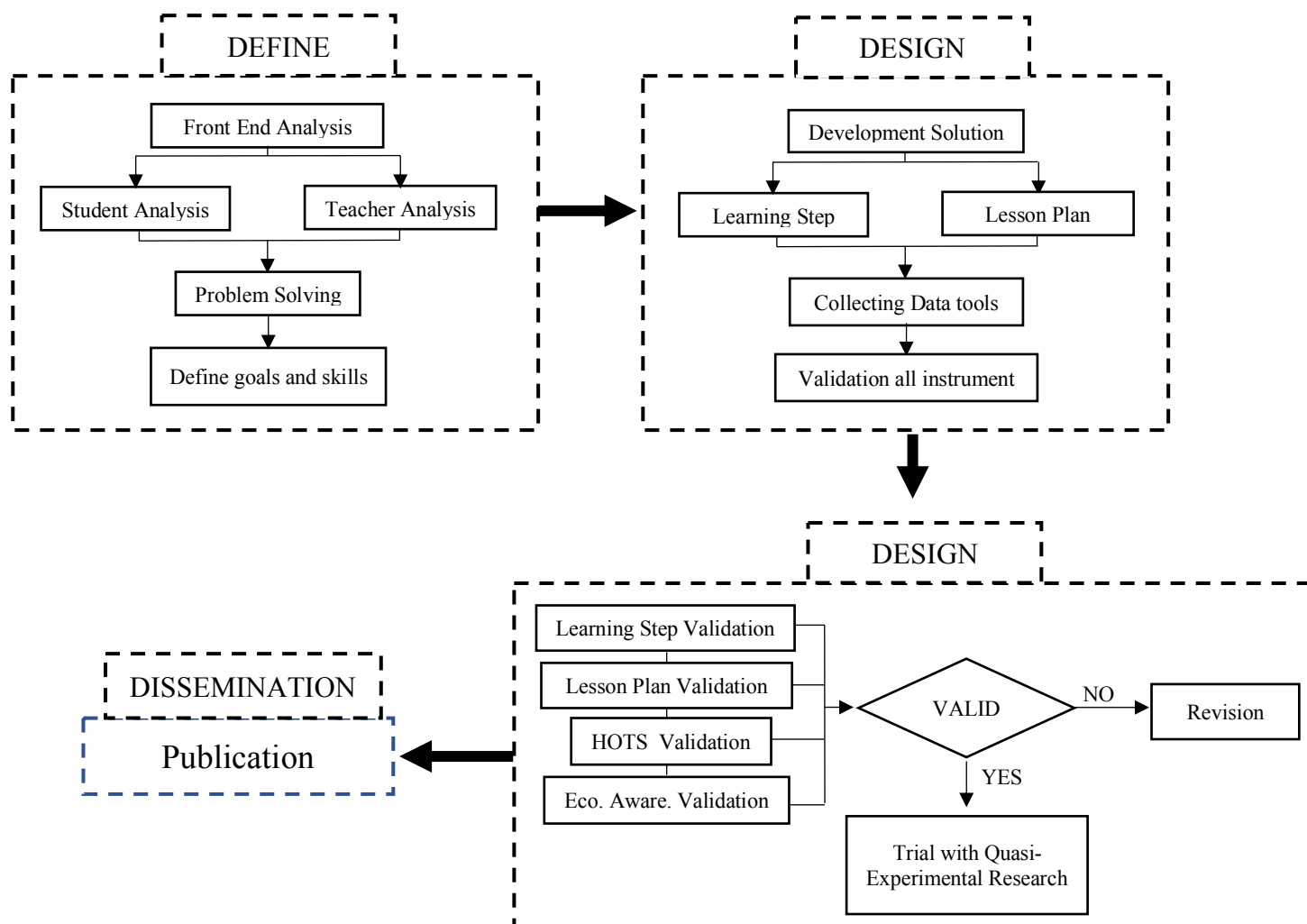


Fig. 1. Research and Development Model 4-D Design

The define stage was carried out to find out the blended learning model used in several schools in Banjarmasin during the Covid-19 pandemic with the following stages: front end analysis, digging information on the blended learning model used in several elementary schools in Banjarmasin City, skills developed in the blended learning model that has been used and the need for the development of blended learning models to meet the needs of today's society. Student analysis (learner analysis) explores information on student activities in the learning process and learning activities expected by students. Teacher analysis, teacher's role in controlling learning, development of students' higher order thinking skills, teacher's difficulties in developing student skills, obstacles when using blended learning. Analysis of developed skills, skills developed in the blended learning model that has been used, evaluation procedures in the learning process whether it contains ecological awareness skills and higher order thinking skills. Formulation of learning objectives, determining learning objectives oriented to the development of ecological awareness skills, and determining how to develop each item of higher order thinking skills.

The design stage begins with the preparation of the skills to be developed. The preparation of this skill is based on the analysis that has been done previously. After knowing the priority skills to be

developed in elementary schools, the researchers made the preparation of learning steps for the GAWI SABUMI blended learning model. Each step of the model is analyzed in depth the substance and skills that can be developed after carrying out these steps.

The next stage is develop. The researcher is studying the basic information about the learning process during the covid-19 pandemic on elementary school, principles, concepts, literature, and related research to create the step of blended learning model. In this phase, the researcher develops the learning processes and activities including the creation of research tools and assessment forms for learning activities and students high order thinking skills. The experimental tools are:

- a. Learning step consist of Group, Analysis, Work Together, Inform, Solve the problem on outdoor, Actualization of solution, Battle games Unity on role play, manage conclusion and invent the creation. Communicate between learners and teachers to do activities according to the learning management plan and deliver learning activities in each step.
- b. Lesson plan by combining classroom face to face and online learning, design and organize learning activity that improves high order thinking skills and ecological awareness
- c. Besides that, the researcher develops the collecting data tools are:
 1. Learning outcome assessment form to be used to evaluate the student work result and rubric score assessment.
 2. Learning record and assessment form after the students do all activities to reflect learning result, self-assessment, and student opinion sheet about learning activities, which is divided into: (1) issues related to learners, (2) instructors and media, (3) the appropriateness of activities and the duration of learning activities, (4) summary and evaluation of learning.
 3. High order thinking skills assessment form consists of critical thinking, creative thinking, problem-solving, logical thinking and analytical thinking was assessed during learning management by using rubric score assessment. The indicator that we use on this study as follows:
 - a) Critical thinking : Questioning, argument analysis, answer and challenge, conclude the argument and solution, interpretation fact, evaluate, distinguish the relevance of the argument (Alfaro-LeFevre, 2016; Dwi Saputra, Joyoatmojo, & Kusuma Wardani, 2018; Sholihah, Inganah, & Effendi, 2017).
 - b) Creative Thinking : Novelty, Fluency, Flexibility, Originality, Elaboration, Abstractness (Agusta & Noorhapizah, 2020; Arisanti, Sopandi, & Widodo, 2017; Marwiyah, Kamid, & Risnita, 2015).
 - c) Problem Solving : ability to show the knowledge with problem, organization and eliminate the relevant information to solve the problem, Ability to choose approaches and problem solving methods, solve the problem with variation of point of view (Hasan et al., 2021; Margulieux & Catrambone, 2016; Netriwati, 2016; Rahmazatullaili et al., 2017; Sholihah et al., 2017).
 - d) Logical Thinking : make conclusion, prove the truth of a conclusion, give the reason, can prove the results of thinking rationally (Changwong, Sukkamart, & Sisan, 2018; Muhassanah, Sujadi, & Riyadi, 2014; Noorhapizah et al., 2020).
 - e) Analytical Thinking : ability to detail problems, problem identification, determine cause and effect, illustrate the problem (Cahyanti, 2017; Firdausi & Asikin, 2018; K. Suartika, I B. Arnyana, 2013)
 4. Ecological awareness assessment form consist of explore environmental issues, design the actions to solve environmental issues, attitude towards environmental issues and sensitive to the preservation of natural resources (Noorhapizah et al., 2021; Simsar, 2021; Sulastri, Haryadi, & Inayah, 2019; Suriansyah et al., 2021; Yunansah & Herlambang, 2017).

Every assessment and evaluation tool were analyzed validity by four experts consist of learning step evaluation expert, lesson plan evaluation expert, high order thinking skills assessment on learning step and evaluation expert and ecological awareness assessment on learning step and evaluation expert. They will evaluate the assessment tools to find the index of consistency (IOC) by selecting questions and questionnaire items that have validity between 0.05-1.00 considered the valid questions that can be used in the research.

High order thinking skills assessment to find the score of student's skills before and after learning with blended learning GAWI SABUMI according to Fitria, Hasanah and Gistituati (2018), Supriatin, Zulela and Boeriswati (2020), Suriansyah, Agusta and Setiawan (2021), Noorhapizah, Agusta and Pratiwi (2021) is a multiple-choice question of 50 items, with the Conbach's alpha score 0.86 (Fitria, Hasanah, & Gistituati, 2018; Noorhapizah et al., 2021; Supriatin et al., 2020; Suriansyah et al., 2021)

Ecological awareness assessment to find the score of student's skills before and after learning with blended learning GAWI SABUMI according to, Suriansyah, Agusta and Setiawan (2021), Noorhapizah, Agusta and Pratiwi (2020) is a questionnaire of 20 items, with the Cronbach's alpha score 0.82 (Noorhapizah et al., 2021; Suriansyah et al., 2021).

The prototype of the blended learning model has investigated the quality and the validity of four experts using a questionnaire and suggestion sheet. The criteria for investigation of the quality and validity of the blended learning model created in each step must have a result that is not lower than the good criteria, with an average score from 3.00 up. Besides that, the researcher use the suggestions from four experts to improve every step of the blended learning model, lesson plan and assessment to be more quality. Then, the researcher using the developed blended learning model to pilot an experiment with 40 students in elementary school, which is non-sample groups of Sungai Miai 2 Elementary School in the second semester, the academic year 2020/2021. The researcher also prepares the teaching observation sheet to guarantee the implementation of all steps of the blended learning model GAWI SABUMI, questionnaire for teachers, to analyze the feasibility of practice and the learning process, according to the users of the blended learning model.

After all of the instrument is stated valid by the expert, researcher do the trial with Quasi-Experimental Research to Find the Effectiveness of Learning Model :

1. In this study, the sampling method used by the researcher was using a non-probability technique. While the type used is purposive sampling. This was done because the researchers chose schools that applied the 2013 Curriculum, in learning activities and the sample of students selected to be studied were students in class 5A as the experimental class and class 5B as the control class in one school located in Banjarmasin. The division of classes in the school is based on the level of students' cognitive abilities and based on information from the teacher, the two classes have almost the same abilities. The students on 5A was treated using the blended learning model GAWI SABUMI, and the student on 5B using the direct learning.
2. Research tool, used the developed tool and improved the quality from the phase 1 of the experiment
3. The research scenario to be a quasi-experimental research, One group pretest-posttest design was conducted as the following steps:
 - a) Preparation before teaching and learning process with orientation about learning strategy, mapping students group, register and practice using the Zoom Meeting, Google Meet, application of learning media (Baramian App). After that, the researcher allow the students to do measurement of high order thinking skills before study.
 - b) Conduct teaching according to the developed blended learning GAWI SABUMI, which is a combination of face to face and online learning using activities for students as the planned. Learning step consist of Group, Analysis, Work Together, Inform, Solve the problem on outdoor, Actualization of solution, Battle games Unity on role play, Manage conclusion and Invent the creation. After that, the researcher collect data and evaluate during learning process.
 - c) Measurement of high order thinking skills after completing the experiment, according to the learning plan. The test technique is used to explore students' skills in critical thinking, creative thinking, problem solving, analytical thinking and logical thinking. The test instrument used essays and multiple choice are arranged based on cognitive domain verbs related to critical thinking skills, creative thinking and problem solving start from fourth level.
 - d) Measurement of Ecological awareness assessment after completing the experiment, according to the learning plan. The test instrument used essays and multiple choice are arranged based on cognitive domain verbs related to explore environmental issues, actions to solve environmental issues, attitude towards environmental issues and sensitive to the preservation of natural resources.
 - e) The researcher measures the high order thinking skills and ecological awareness after the students are finished study.
4. Data collection from learning process use various instrument, includes various events that occurred during teaching and learning by recording and assessment forms after the discussion and commenting with group members, work pieces stored in the Google Classroom and Google Drive, and presentation of learning outcome in the classroom.
5. Data analysis, the researcher analyze all of the data collection as follows:

- a) Learning outcome, the researcher use the students work result, find the average and standard deviation, and translate the mean value into learning level.
 - b) High order thinking skills assessment as critical thinking, creative thinking, problem solving, logical thinking and analytical thinking by finding the mean and standard deviation and translating the mean to each skill level and compare with the criteria and interpret the meaning as the setting and concluded that the students have the level of learning skill for each level.
 - c) Ecological awareness assessment by finding the mean and standard deviation and translating the mean to skill level and compare with the criteria and interpret the meaning as the setting and concluded that the students have the level of ecological awareness.
 - d) Score of the higher order thinking skills test before and after study, analyzed by finding the mean and standard deviation, comparing the average score before and after learning by using t-test in a single sample group.
6. Conclusion of learning outcomes base on the developed learning model. Evaluation of effectiveness of blended learning model GAWI SABUMI that use on the learning activities to develop students skills in high order thinking skills, the characteristics as follows students have an average score from the higher order thinking skills test after study higher than before study at .01 level of significant.

3. Results and Discussion

Research and development were carried out from March to July 2021 during the Covid-19 pandemic which required all schools in South Kalimantan to carry out learning from home. The results of this study will be presented in three parts consisting of learning conditions during the Covid-19 pandemic at SDN Sungai Miai 2 Banjarmasin, the development of the GAWI SABUMI blended learning model and the effectiveness of the GAWI SABUMI blended learning model to improve student high order thinking skills.

At the beginning of March 2020, the Banjarmasin City government announced the implementation of a large-scale social restriction preparation period after more than 20 Banjarmasin residents tested positive for the Covid-19 virus. This condition requires that all schools in the city of Banjarmasin be closed and the teaching and learning process is shifted from face-to-face directly to network-based learning (online).

This condition requires teachers at SDN Sungai Miai 2 Banjarmasin to apply to learn from home even though the method is simple, namely using the WhatsApp application group. The teacher provides learning in the form of voice and video recordings then accompanied by assignments that must be done by students. However, the collection of product assignments is done by submitting them directly to the teacher at the school. This learning method is considered boring for students after walking for a month.

In addition, the mission of Sungai Miai 2 Elementary School in Banjarmasin is to implement the Adiwiyata school climate. One of the goals is to promote the development of ecological awareness. But do not forget the development of higher-order thinking skills. but during the Covid-19 pandemic, the learning process could not optimize the development of ecological awareness and higher-order thinking skills. Seeing this reality, students who are colleagues of teachers at SDN Sungai Miai 2 Banjarmasin are looking for effective ways to develop learning that leads to the improve students high order thinking skills even though they have to learn from home.

A. Development Blended Learning Model GAWI SABUMI

The development stage begins with the define stage by collecting information to analyze the needs at SDN Sungai Miai 2. Information is collected through five analytical activities (front-end analysis, learner analysis, teacher analysis, skill development analysis, and (specifying instructional objectives).

Product development begins with determining the substance of the blended learning model GAWI SABUMI. The GAWI SABUMI model is a blended learning model that combines virtual or online learning and face-to-face but is accompanied by activities to improve high order thinking skills and ecological awareness. The design of the blended learning GAWI SABUMI is as follows:

Table 1. The syntax of blended learning model GAWI SABUMI

<i>Learning Step</i>	<i>Implementation</i>
<i>Group</i>	The activity begins with gathering teachers and students in a virtual classroom using Google Meet or Zoom Meeting. At this meeting, the teacher uses audio to provide a detailed explanation of the substance of the physical activities that have been carried out. Explanations can be done in person or using a voice recording. The explanations are supported by videos to provide more concrete knowledge to students.

	The teacher will present as many question and answer activities as possible to give students the opportunity to answer questions and provide arguments, the teacher will also provide opportunities for students to provide answers to other students' questions so that various answers emerge.
<i>Analysis,</i>	The activity was continued by distributing student worksheets that offered several solutions that the group of students would give. Students will be directed to analyze what will happen if the solution is applied. To be more focused, analysis activities are equipped with worksheets that will guide students to express their opinions and reasoning about the solutions given. Each group must organize their learning experience so that they can find material concepts based on the problems raised by the teacher. Analysis activities will formulate the results of reasoning that will be carried out in physical activity.
<i>Work Together</i>	Students will be divided into several groups consisting of 3-4 people. students will be directed to negotiate with friends in the group. Negotiation is a continuation of the observing and questioning activities that have been raised in the Auditory activity. Negotiations started with the teacher distributing number cards with different problems, the cards were given in the Whats App application group in the form of pictures. The teacher will place students with the same problem in a group, groups are formed with a special Whars App group which contains 3-4 students. The teacher provides different factual problems for each group so that they will try to analyze each problem presented. Students will negotiate in groups to formulate in detail what problems are happening, what will happen if the problems are left alone.
<i>Inform,</i>	This activity is certainly inseparable from training students to raise a lot of questions, because the teacher's explanation will provoke students to express their curiosity about the problems that occur and provoke students to prepare solutions that will be given. The teacher will add activities to give students the opportunity to evaluate various ideas given to distinguish between relevant arguments and irrelevant arguments, until finally giving all students the opportunity to conclude idea
<i>Solve the problem on outdoor,</i>	Students will be directed to do physical activities that will train students to test the results of reasoning about the solutions given with friends in the group. Physical activity consists of exploring things that can be found in the child's environment. The group will investigate critically, systematically, and logically so that they can formulate their own findings confidently. Before students do physical activity, the teacher will provide clear directions starting from the activity steps to the final result that will be obtained in the form of collecting data through information gathering activities so that their critical thinking skills will be honed through this activity.
<i>Actualization of solution</i>	The results obtained from physical activity are used to carry out administer information activities using group worksheets. Group worksheets are distributed through the WhatsApp group, then students who previously conducted the experiment individually are grouped into groups with the feature of dividing participants into groups on the Zoom Meeting or google meet application. Another alternative that teachers can do is to use WhatsApp media by forming small groups. Students will work together to identify each item of question related to trying / gathering information. Students will administer the information that has been obtained and hone their knowledge and convey the meaning of the process of trying / digging up information on physical activities.
<i>Battle games</i>	At the end of the lesson before the teacher gives an award, students are invited to do a game. The game is designed to be flexible, not bound by rules. The game is intended to provide fun activities for students even though they are studying online at home. The game is designed to give students the opportunity to interact with each other, either by using the WhatsApp, Google Meet or Zoom Meeting applications.
<i>Unity on role play</i>	This activity is filled with illustrating events related to subject matter that involve students as the main actors in it. The delivery of illustrations is done in the form of a story as well as provoke enthusiasm for students in practical activities through motion and words. The teacher prepares scenarios before the start of learning to clarify the learning material to be delivered. The teacher prepares a scenario before the start of learning to clarify the learning material that will be delivered or given to students. The teacher asks each group representative to come forward to get information on learning materials that will be delivered by the teacher.
<i>Manage conclusion and Invent the creation</i>	The results obtained from physical activity are used to carry out administer information activities using group worksheets. Group worksheets are distributed through the WhatsApp group, then students who previously conducted the experiment individually are grouped into groups with the feature of dividing participants into groups on the Zoom Meeting or google meet application. Another alternative that teachers can do is to use WhatsApp media by forming small groups. Students will work together to identify each item of question related to trying / gathering information

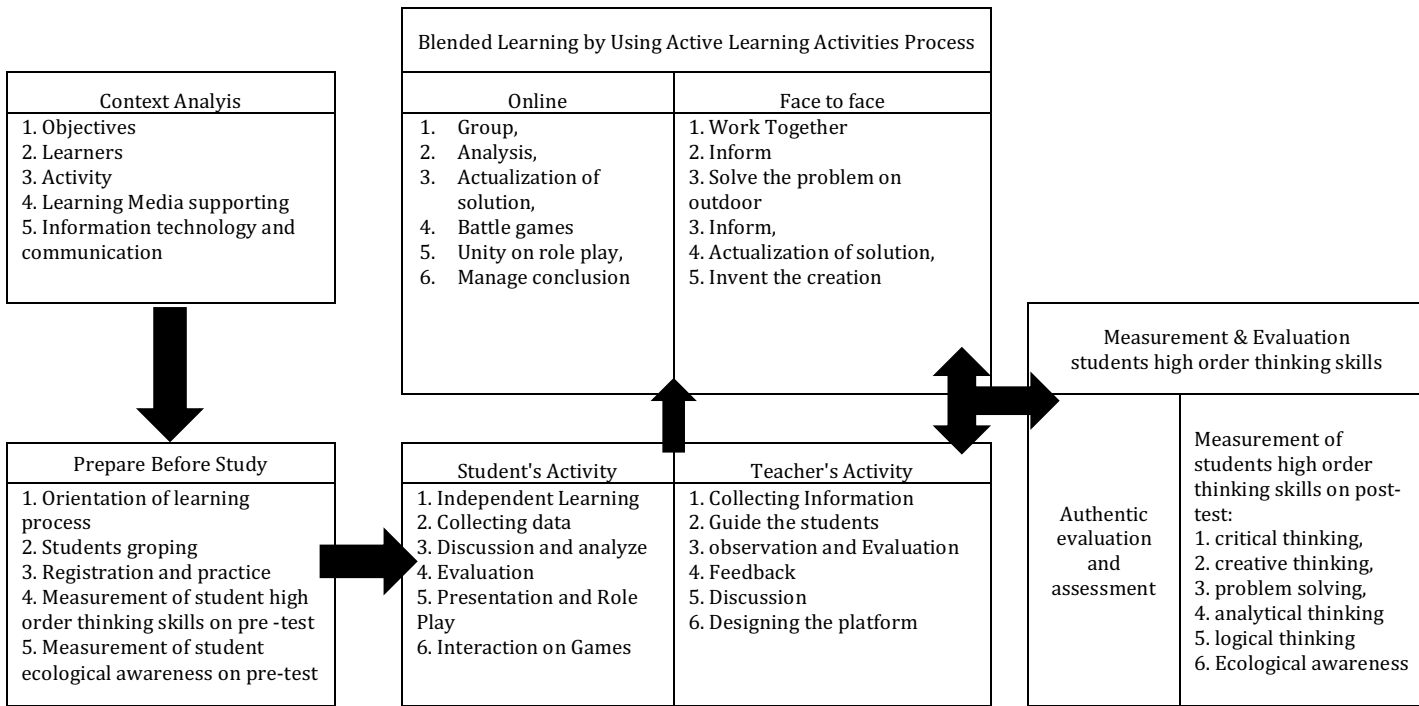


Fig. 2. The blended leaning model GAWI SABUMI to improve students' high order thinking skills

B. Development Blended Learning Model GAWI SABUMI

The efficiency of the blended model step design that has been compiled is then validated by lesson plan evaluation expert, learning step evaluation expert, learning outcome assesment evaluation expert, high order thinking skills assessment evaluation expert with construct validity was at a very good level ($X= 4.53$) ($SD = 0.13$), ecological awareness assessment evaluation expert with construct validity was at a very good level ($X= 4.56$) ($SD = 0.13$) and can be used to achieve the objectives of the learning model (see Table 2).

Table 2. The Efficiency Investigated of Blended Learning GAWI SABUMI by Experts

Evaluation Aspect	Result		
	\bar{X}	S.D.	Efficiency Level
The concept of Learning Model	4.60	.548	Very Good
The objective of Learning Model	4.70	.548	Very Good
Context Analysis	4.70	.548	Very Good
Preparation before study	4.60	.548	Very Good
Blended learning by using active learning activities process	4.70	.548	Very Good
Online Learning			
a. Group,	4.50	.548	Very Good
b. Analysis and observation,	4.50	.548	Very Good
c. Wondering observation result,	4.50	.548	Very Good
d. Intensive data collection,	4.60	.548	Very Good
e. Analysis the result	4.70	.548	Very Good
f. Negotiation of solution	4.50	.548	Very Good
g. Using Technology,	4.50	.548	Very Good
Face to face learning			
a. Intensive data collection	4.60	.548	Very Good
b. Making experiment on outdoor	4.40	.548	Good
c. Task Product Creation,	4.40	.548	Good
d. Unity on presentation and role play,	4.50	.548	Very Good
e. Necessity intelligences development	4.20	.447	Good
f. Network Tournament and Games	4.50	.548	Very Good
g. Measurement and Evaluation	4.50	.548	Very Good
h. The possibility to utilize blended learning model by used active leaning activity to use in	4.50	.548	Very Good
Average	4.50	.120	Very Good

From the introduction of the developed learning model to pilot experiment with 40 students with non-sample groups of Sungai Miai 2 Elementary School. Teachers' activity by six activities. The results of the improvement of high order thinking skills found that, in general most students understand with the learning activity as well as learning model and satisfied with the teaching and learning process. Using media, equipment and learning resources that support learning management both in classroom and online learning. In addition, most students are able to show their role appropriately, allowing them to continue to learn, according to the learning model that has been developed continuously.

Almost every component of the supporting factor gets suggestions and input from the validator. These suggestions include the need to reconsider between activities and the allocation of learning time. According to experts, there are too many learning activities with learning objectives, so it requires more time allocation. Revisions are made by improving the learning objectives at each meeting so that learning activities do not exceed the allotted time. This is in line with the results of study conducted by Mahnun & Nida (2012) which states that in determining learning objectives, it is necessary to pay attention to available time management so that all learning objectives can be achieved optimally.

In addition, according to experts, there are dissimilarities between lesson plans and teaching materials. The activities written in the student's lesson plan only make study visits. This is because the study visits are carried out outside of class hours so they are not included in the learning activities written in the lesson plans, but the directions for conducting study visits are explained in the closing part of the lesson plans. Home visits study are more effective and efficient when carried out outside class hours so that they do not interfere with class hours. Study visits outside of class hours are not limited by class hours so that students can explore more knowledge related to burnt batik and can use study time effectively and efficiently. After the revision was made according to the input, the validation was declared feasible by the three experts, this was because improvements had been made in accordance with the suggestions from the experts

C. Results of Used Learning Model

The researcher implement the blended learning model obtained from the research in phase 1 to experiment in order to find the effectiveness of the learning model on the improve of student high order thinking skills and ecological awareness. Including, studying the opinions of students towards the learning model developed by the researcher. The sample of experiment group of 40 students in Sungai miai 2 Elementary School. Information and Communication Technology for Teachers, spent 6 weeks in the experiment, of completing the learning activity. The researcher evaluated learning outcome of high order thinking skills and the competency reach and also ecological awareness.

Students high order thinking skills by using the test of critical thinking, creative thinking, problem solving, logical thinking and analytical thinking after study which is the same version that the students have done before teaching and learning. The results of analysis of higher order thinking skills, students reach the higher order thinking skills competency after learning, according to the overall was at very good level. And when considered in each skill was found that learners with the highest level of thinking skills in attributing and checking skills (see Table 3) and from post-test scores, found that learners had higher level of higher order thinking skills after learning, developed in all skills at .01 level of significant (see Table 5). Based on the evaluation of the high order thinking skills scores after the study, shows that learning through blended learning GAWI SABUMI can help improve students high order thinking skills.

Table 3. Student's Skill on Higher Order Thinking Skills After Study

High Order Thinking Skills	Result		
	\bar{X}	S.D.	Competency Level
Critical Thinking	3.68	.48	Very Good
Creative Thinking	3.69	.49	Very Good
Problem Solving	3.71	.54	Very Good
Analytical Thinking	3.66	.46	Very Good
Logical Thinking	3.78	.59	Very Good
Average	3.70	.51	Very Good

Students ecological awareness by using the test of explore environmental issues, actions to solve environmental issues, attitude towards environmental issues and sensitive to the preservation of natural resources after study which is the same version that the students have done before teaching and

learning. The results of analysis of ecological awareness, students reach the ecological awareness skills after learning, according to the overall was at very good level. And when considered in each skill was found that learners with the highest level of ecological awareness in attributing and checking skills (see Table 4) and from post-test scores, found that learners had higher level of higher order thinking skills after learning, developed in all skills at .01 level of significant (see Table 5). Based on the evaluation of the ecological awareness scores after the study, shows that learning through blended learning GAWI SABUMI can help improve students ecological awareness.

Table 4. Student’s Skill on Ecological Awareness After Study

Ecological Awareness Indicator	Result		
	\bar{X}	S.D.	Competency Level
explore environmental issues	3.61	.47	Very Good
actions to solve environmental issues	3.68	.48	Very Good
attitude towards environmental issues	3.88	.64	Very Good
sensitive to the preservation of natural resources	3.72	.47	Very Good
Average	3.72	.51	Very Good

Other data obtained from large-scale trials are the assessment of the implementation of learning and student learning outcomes. The implementation of teacher and student activities in the learning process is presented in Figure 2:

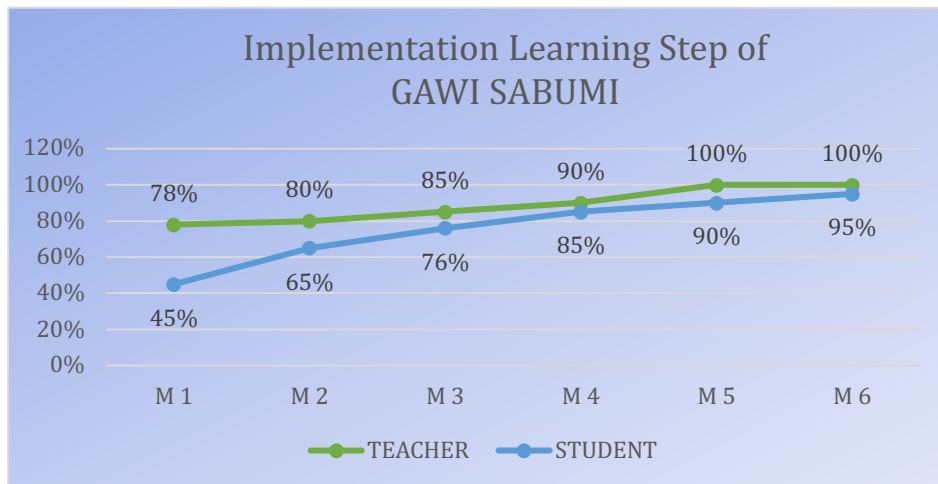


Fig 3. Implementation Learning Step of GAWI SABUMI from Teacher and Students

Table 5. N Gain Analysis the operational test on six meetings

High Order Thinking Skills	Items	N = 40)				t	p*
		Pre-test		Post-test			
		X1	SD.1	X2	SD.2		
Critical Thinking	8	3.57	.999	6,78	.891	-15.434	.000
Creative Thinking	9	3.64	.532	6,34	.752	-15.832	.000
Problem Solving	8	3.65	.679	6,78	.712	14.102	.000
Logical Thinking	8	3.55	.465	6,45	.794	-17.954	.000
Analytical Thinking	9	3.57	.588	5,45	.712	-14.699	.000
Ecological Awareness	20	3.12	.899	5.73	.701	-14.002	.000
Average Score	42	3.59	16.98	31,8	3.785	-958	.000

The increase in the value of knowledge is dominated by the "high" category because the learning presented provides very high motivation to students. The learning process is also not dominated by the transfer of knowledge in the form of theory, but students are brought to participate in learning with a variety of collaborative and independent information mining activities. Students are also led to exploring various problems that occur around them so that they are not required to memorize theories that make learning less meaningful.

Aspects of critical thinking in this study also increased significantly. This is because learning is packaged with directions following indicators of critical thinking skills. Students are also guided to carry out the critical thinking process intensively. Students are guided to recognize different ways of critically

analyzing and developing questions and answers from multiple perspectives. With the guidance of teachers and students feel challenged to explore in-depth information and look at various problems and solutions from various sides.

Learning is also directed to foster creative thinking. This can be seen from the percentage gain with the high category very dominating. This is because learning is provided with clear directions and communicative learning resources and contains detailed narrative directions for various activities, making students less dependent on the teacher. A very encouraging condition was that at the last meeting students explored alternative problem solving through projects, in this activity they did not need teacher guidance. They are very enthusiastic about arguing to contribute creative thinking to solve current problems and provide a thorough explanation of the completed projects.

An aspect that is no less important in this study, namely solving problems has also increased significantly. This is because all indicators of problem-solving skills are peeled off one by one and developed for all students through the guidance of teachers and students. All students feel challenged to explore the problems that occur and find alternative solutions to problems with friends in the group. Teachers and students give appreciation and reinforcement to students' abilities to explore and solve problems, even though the results obtained are not too perfect. This appreciation and reinforcement from the teacher also provoke students' motivation to always try and try without fear of making mistakes.

Another aspect that also continues to increase is logical and critical thinking. A significant increase occurred in a short time because it was carried out with intensive guidance from teachers and students. Learning is directed at extracting information about problems that arise in the surrounding environment or that are familiar among them so that their logical and analytical thinking can be developed easily. This makes it easier for students to recognize the problems that occur. The activity is continued by looking for alternative problem-solving with colleagues in the group. This activity is also designed to be as attractive as possible even though it is only carried out online through the Zoom Meeting, Google Meet, or WhatsApp pages. This becomes a new routine for students so that it provokes student motivation and has an impact on increasing the quality of learning significantly.

Discussion

The GAWI SABUMI blended learning model is a solution to overcome learning problems during the COVID-19 pandemic. The GAWI SABUMI blended learning model is an alternative solution to develop students' skills even though learning is only carried out online. This condition lines with the research results of Noorhapizah, Agusta, and Pratiwi (2020) that the learning process must run optimally even though teachers and students interact online. The GAWI SABUMI blended learning model is also an alternative solution for developing student skills that can be used by teachers as a reference because according to research by Noorhapizah, Agusta and Pratiwi most teachers still have not mastered the concept of skills that elementary school students must have and have not been able to package learning containing thinking skills. high level (Noorhapizah et al., 2021).

The development of the GAWI SABUMI blended learning model is carried out based on the demand to produce elementary school graduates who can think at a higher level. Higher-order thinking skills have an impact on students' ability to think deeply and consider various problem solutions quickly, precisely, and accurately (Aizikovitsh-Udi & Amit, 2011; Duran, 2016; Facione, 2015; Metro, 2015; Sinprakob & Songkram, 2015). Students who are trained to think at a higher level will have speed and accuracy in solving problems, able to argue or communicate with various points of view to solve problems (Firdaus & Wilujeng, 2018; Firdausi & Asikin, 2018; Siregar, Misyuari, Nababan, & Fahmi, 2021; Suriansyah et al., 2021; Tanjung & Nababan, 2018).

Therefore, the learning paradigm should shift from conventional learning that emphasizes lower-order thinking skills towards learning higher-order thinking skills. One of the higher-order thinking skills that must be possessed by the younger generation is critical thinking. Critical thinking is the basis that students must have to be able to develop higher-order thinking (D. R. Puspitasari, Yuliati, & Kusairi, 2017; L. Puspitasari, In'am, & Syaifuddin, 2018).

Critical thinking is the most important part of the learning process because critical thinking will create young people who can interpret, analyze, conclude, evaluate, explain and self-regulate (self-efficacy) both in education and general fields (Duran, 2016; Facione, 2015; Herdianawati, Fitrihidajati, Purnomo, & Surabaya, 2013; Husein, Herayanti, & Gunawan, 2017; Mulyadi, Wahyuni, & Handayani, 2016; Sinprakob & Songkram, 2015). The importance of critical thinking skills has become the basis for

researchers to develop the GAWI SABUMI blended learning model, several learning steps that include activities for developing critical thinking skills, namely Analysis and Observation activities, Wondering observation results, Intensive data collection, and Negotiation of Solutions (Duran, 2016; Herdianawati et al., 2013; Husein et al., 2017).

The activity steps of Analysis and Observation, wondering observation result, Analysis of the result, and Making experiments outdoor can also develop problem-solving skills. This is in line with previous research which states that problem-solving skills can be developed by asking questions or allowing students to make questions from observations (Astuti, 2015; Laely et al., 2020; Patmawati, 2011; Reynaldi, Sugianto, & Astuti, 2016), providing opportunities for students to explore problems that are happening from observations (Mulyadi et al., 2016; Oktaviani, A.N., Nugroho, 2015), opens students' horizons using concrete and diverse objects (Astuti, 2015), uses the surrounding environment as an object of observation (Tendrita, Mahanal, & Zubaidah, 2016), involves students providing arguments to answer various questions (Firdausi & Asikin, 2018; Widiastuti & Putri, 2018).

The development of GAWI SABUMI blended learning is one of the strategies to practice problem-solving skills using mobile learning technology. This condition is in line with the results of research showing that using mobile learning can develop students' critical thinking (Lapitan, Tiangco, Sumalinog, Sabarillo, & Diaz, 2021; Sefriani, Sepriana, Wijaya, Radyuli, & Menrisal, 2021), this blended learning model also trains students to be able to interpret, analyze, conclude, evaluate, explain and self-regulate (self-efficacy) both in education and general fields (Facione, 2015; Herayanti & Habibi, 2017; Husein et al., 2017; Sinprakob & Songkram, 2015).

In addition to focusing on improving critical thinking skills, the development of the GAWI SABUMI blended learning model also has the advantage of improving students' creative thinking and problem-solving skills. Creativity is seen as one of the important skills that must be possessed by the younger generation in the future, the skills need to be developed in the future are critical thinking, creativity, cooperation, and communication (Alismail & McGuire, 2015). The learning process carried out by researchers uses activity designs that can train students' creativity starting from the stage of doing Analysis and Observation, wondering observation results, Analysis of the result and Making experiments on outdoor by opening students' horizons by presenting a problem in everyday life. The efforts made by the teacher are in line with previous research that learning that poses various problems can increase students' creativity because it is done by broadly developing students' ideas through displaying problems (Arisanti et al., 2017; Widiastuti & Putri, 2018).

Wondering observation result activities also have the potential to hone students' communication skills through giving and receiving information, conveying opinions or arguments in groups, responding to statements from friends in groups during discussions, explaining what will and has been done in groups, receiving information provided by group friends. well and gave a positive response despite differences of opinion (Husein et al., 2017; Oktaviani, A.N., Nugroho, 2015).

The development of student's creative thinking skills is continued in Necessity intelligence development and Task Product Creation activities. This activity also has the potential to develop student creativity, this activity is because the learning process carried out provides experience for students to create creative projects related to the topic being studied. Students' creativity is trained through creating solution-solving products and meaningful products that can be utilized in everyday life. Similar activities have been carried out by previous researchers with the final results showing that presenting simple project activities has the potential to develop students' creativity. They are free to express their skills and find the latest solutions or modifications of existing solutions (Agusta, Setyosari, & Sa, 2018; Noorhapizah et al., 2021; Suriansyah et al., 2021).

In addition, the Task Product Creation activity will familiarize students to acquire their knowledge as research states through solving problems by utilizing the surrounding environment outdoor learning (Agusta et al., 2018; Aizikovitsh-Udi & Amit, 2011; Noorhapizah et al., 2021; Setyowati, Sarwanto, & Muzzazinah, 2021). Through this activity, in addition to having creative abilities, students will also have scientific literacy skills that are in line with research by Nursifah, Rahayuni, Vieira, and Tenreiro that natural learning outside the classroom can improve science mastery and literacy of elementary school students (Nursifah, Komala, & Rusdi, 2018; Rahayuni, 2016; Vieira & Tenreiro-vieira, 2016).

In addition to the Task Product Creation activity, the Making experiment on outdoor activity will also hone creative thinking skills. The consideration of presenting a learning process that contains creativity is the reason for researchers in presenting activities that contain the formation of experiences through moving activities or extracting information to solve problems by utilizing the environment as a learning

resource. This activity is in line with the results of research which states that learning activities by utilizing an outdoor learning environment can contribute to developing creativity, group work skills, and mutual respect for one another (Aizikovitsh-Udi & Amit, 2011; Nurdin & Setiawan, 2015; Setyowati et al., 2021; Siripongdee, Pimdee, & Tuntiwongwanich, 2020; Suriansyah et al., 2021).

Other skills developed in this research are logical thinking and analytical thinking skills. One of the learning steps that can develop these two skills is Analysis and observation. In this activity, the teacher will provide learning content that is more specific to exploring environmental issues related to the South Kalimantan area. Students will be asked to analyze what will happen if the problem is left unchecked, thus students are trained to reason about the possibilities that will occur so that analytical thinking skills begin (Husein et al., 2017; Lapitan et al., 2021). Then students and groups will discuss the best solution for the problem being discussed. Furthermore, students will be directed to analyze what will happen if the solution is applied. This activity will train students' logical thinking skills (Muhassanah et al., 2014; Redhana et al., 2017).

In addition to the Analysis and observation activities, logical and analytical thinking skills are developed in the steps of Wondering observation result, Analysis of the result and Making experiments outdoor. This is because these 2 activities will train students to give and receive information, express opinions or arguments in groups, respond to statements from friends in groups during discussions, explain what will and have been done in groups, receive information provided by group friends properly. and give a positive response even though there are differences of opinion. This is in line with the development of analytical thinking skills (Arifuddin, 2020; Arisanti et al., 2017; Barbot, Besançon, & Lubart, 2016; Firdausi & Asikin, 2018).

The same activity will also train students to work together to identify each question item related to the activity of trying/digging information. Students will administer the information that has been obtained and hone knowledge and express the meaning of the process of trying / digging information on physical activity. This activity will also train students' independence in learning so that self-confidence grows (Husnah & Surya, 2017; Mulyadi et al., 2016; Oktaviani, A.N., Nugroho, 2015; Zeidler, Chung, Yoo, Im, & Lee, 2014).

The activity was continued with Unity on presentation and role-play activities. This activity is filled with illustrating events related to the subject matter involving students as the main actors in it. The presentation of illustrations is done in the form of stories and at the same time provokes the enthusiasm of students in practical activities through movement and words. The teacher prepares a scenario before the start of learning to clarify the learning material that will be delivered or given to students. The teacher asks each group representative to come forward to get information on the learning material that will be delivered by the teacher. This activity will raise students' awareness of the environment because the role play content will focus on the skills to act on environmental issues and respond to environmental damage that occurs to feel how environmental conditions are from two sides. Thus, students can weigh the best attitude to respect the environment (Agusta & Pratiwi, 2021; Agusta et al., 2018; Noorhapizah et al., 2021; Suriansyah et al., 2021).

Furthermore, students are invited to do Network Tournament and Games activities. The game is designed to be flexible and not bound by rules. The game is intended to provide fun activities for students even though they are studying online at home. The game is designed to allow students to interact with each other, either by using WhatsApp, Google Meet or Zoom Meeting applications. This activity will foster students' motivation and enthusiasm in learning. Although learning activities are arranged with tiring activities, the end of learning is packed with fun activities which are an effort to make students interested in participating in further learning activities

4. Conclusions

Based on the results of the study and discussion, it can be concluded that: (1) the blended learning model GAWI SABUMI based on local wisdom is feasible to use in the learning process; (2) GAWI SABUMI blended learning model can improve critical thinking skills, creative thinking, problem-solving, logical thinking and analytical thinking; (3) The blended learning model GAWI SABUMI can improve ecological awareness. The implication of this study: (1) The blended learning model GAWI SABUMI can be used on learning process to make the fun learning and can increase students' motivation; (2) The blended learning model GAWI SABUMI can be the alternative for the teacher to improve students' high order thinking skills with the blended learning technique; (3) As an alternative to help prevent students' learning loss.

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