



# Development of Student Worksheets for Blended Learning Models Assisted by Learning Videos to Improve Students' Creative Thinking Skills

Debby Nuradelia<sup>1\*</sup>, Mahrus<sup>1</sup>, Anindita SHM Kusuma<sup>1</sup>

<sup>1</sup> Biology Education Program, Faculty Teacher Training and Education, University of Mataram, Indonesia.

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Corresponding Author:

Debby Nuradelia

[debby.nuradelia@gmail.com](mailto:debby.nuradelia@gmail.com)

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**Abstract:** Creative thinking skills are one of the demands of 21st-century learning. This study aims to produce a product of student worksheets for blended learning models assisted by learning videos to improve students' creative thinking skills with the objectives of being valid, practical, and effective. This research is research and development that refers to the development model proposed by Thiagarajan, namely the 4D research model consisting of Defining, Designing, Developing, and Disseminating. The validity of the learner worksheet was analyzed using CVI. The practicality value used a learner response questionnaire distributed via Google form filled in by 30 learners. The effectiveness was analyzed using paired sample T-Test. The results showed a value of 0.85 with a valid category, practicality of 90.67% included in the convenient category, and effectiveness, so it concluded that the worksheet of the blended learning model assisted by the learning video developed is valid, practical, and effective for improving students' creative thinking skills.

**Keywords:** Blended Learning; Creative Thinking Ability; Learning Video; Research and Development; Worksheets.

## Introduction

In the 21<sup>st</sup> century, education has become more advanced and developed, and various ways to improve the quality of education. Increasing education quality and breakthroughs are needed with curriculum development, learning innovation, and fulfillment of infrastructure (Wisada & Sudarma, 2019). Education is purposed to prepare students to compete in today's social life. Education must be able to facilitate students to compete by the times. The student must possess the ability to think creatively (Aswan, 2016).

Creative learners can be able to view problems from various points of view. Of course, this ability allows students to use multiple alternative ways of solving learning problems (Nursiddieq et al., 2022). Educational institutions are required to be able to assist students in developing their creative thinking skills. However, the most visible problem

when it implemented the science is the absence of knowledge that supports the creative thinking skills needed today. Current science learning focuses on remembering and understanding without asking students to explore further. Learners' creative thinking skills in learning activities are currently less prominent because schools do not support enabling students' creative thinking skills (Tumurun et al., 2016).

Based on the results of interviews with biology teachers of SMAN 1 Gerung during the implementation of PLP on September 12, 2023, showed that many teachers are less able to use technological media. The results of classroom observations also show that students' creative thinking skills are still low due to the lack of media and the lack of utilization of technology in learning activities.

As a result, technological advances impact a person's behavior and habits, especially in accessing and obtaining information (Nursiddieq et al., 2022). In

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addition, the activities that students do in learning also determine the skills that students will have. One form of learning that can help students achieve creative thinking skills is providing activities of student worksheets for blended learning models assisted by learning videos. Learner worksheets, commonly abbreviated as worksheets, are activity sheets that help learners develop or solve problems to find new concepts and knowledge (Majid, 2013). The Worksheet model of blended learning assisted by learning videos ensures flexibility and usefulness that cannot be found in the classroom environment (Ariani, 2018).

Video media is media that can help students be more active in participating in teach (Utami et al., 2020). Learning video media has several advantages. These advantages according to Rusman et al. (2012) in their article are: (1) giving messages that can be received more evenly by students, (2) very good for explaining a process, (3) overcoming space and time limitations, (4) more realistic, can be repeated and stopped as needed, (5) giving a deep impression that can affect the attitude of students.

Based on the description above, the research's development of student worksheets for blended learning models assisted by learning videos to improve students' creative thinking skills must be exhausted. The execution of a blended learning model based on students directly learning online and offline independently using their respective learning styles. With this research, hopefully, students can understand the subject matter in improving the creative thinking skills of students.

**Method**

This type of research is research and development. This development model refers to the development model (Sugiyono 2017), development model called 4D from Define, Design, Development, and Dissemination. The product developed and produced is a Blended Learning model Learner Worksheet to improve students' creative thinking skills. The population was all students of class XI SMA Negeri 1 Gerung. The sample of this study were students of class XI-D SMA Negeri 1 Gerung. The sampling method used purposive. The instruments used in this study were validation sheets, student response questionnaires, and student creative thinking test instruments in 10 essay questions to determine the effectiveness of the products developed. The implementation of the instrument of the validation sheet of the student worksheet in this research and development to obtain product assessment data from expert validators. The results of the validators will then be analyzed using the CVI statistical technique because CVI is a validity test that has often been used by

other researchers over the past ten years (Puspitasari & Filda, 2021). The criteria used to determine the validation results are (Guildford & Fruchter, 1978):

- a. 0.80 < Mean I-CVI < 1.00: Very high validity (very good).
- b. 0.60 < Mean I-CVI < 0.80: High validity (good).
- c. 0.40 < Mean I-CVI < 0.60: Medium validity (fair).
- d. 0.20 < Mean I-CVI < 0.40: Low validity (less).
- e. 0.00 < Mean I-CVI < 0.20: Very low validity (poor).

Data on the practicality of the blended learning model student worksheet assisted by learning videos will be obtained from the learning implementation sheet of the student response questionnaire, which will then be analyzed to determine the average percentage with the Equation 1:

$$\text{Value \%} = \frac{\text{sum of scores from raters}}{\text{maximum scores}} \times 100\% \tag{1}$$

With the practicality criteria used, namely 0%-20% (Very impractical), 21%-40% (Less practical), 41%-60% (Quite practical), 61%-80% (Practical) and 81%-100% (Very practical) (Arikunto, 2010).

The effectiveness analysis consists of analyzing the improvement of students' creative thinking skills during the initial test (pretest) and final test (posttest) carried out using the One-Group Pretest-Posttest Design. Furthermore, it will be presented using descriptive statistics that have been obtained using the paired T-test using the SPSS (Statistical Program for Social Science) version 23 application. However, before conducting the paired T-test, the normality test and homogeneity test are carried out first.

**Result and Discussion**

**Table 1.** Validation Results of Worksheets Blended Learning Model

Items	Appraiser		Expert in Agreement	i-CVI
	I	1		
Point 1	1	1	1	1
Point 2	1	1	1	1
Point 3	1	1	1	1
Point 4	1	1	1	1
Point 5	1	1	1	1
Point 6	1	1	1	1
Point 7	1	1	1	1
Point 8	1	1	1	1
Point 9	1	1	1	1
Point 10	1	1	1	1
Point 11	1	1	1	1
Point 12	1	1	1	1
Point 13	1	1	1	1
Point 14	1	1	1	1
Point 15	1	1	1	1
	s-CVI			1

The validity of the blended learning model learner worksheet products assisted by learning videos is carried out to determine whether the products that have been developed are suitable for use or distribution to students or schools.

Based on Table 1 above, the results show that the i-CVI and s-CVI values are 1, so it can be concluded that the validation of the developed product is very high (very good) because it is included in the range  $0.80 < \text{Mean I-CVI} < 1.00$ . Furthermore, the practicality test was carried out. The practicality test was carried out by distributing response questionnaires via google form to students. The following response questionnaire results are presented in Table 2.

**Table 2.** Response Questionnaire Results

Number of questions	Number of respondents	Number of X component
15 items	30	1632
Practicality criteria		
90.67%		

Based on the calculation results in Table 2, the average percentage of students' responses to the learning activities carried out is 90.67% and is classified into the very practical category. After the validity test and practicality test have been fulfilled, then the effectiveness test is carried out on the product that has been developed.

The effectiveness test of this research was carried out to find out how the effectiveness of the product that had been developed during class learning. Previously, the calculation of the average pretest-posttest scores of students was carried out. The average of the pretest-posttest scores of students is presented in Table 3. Based on Table 3, the average results of pretest and posttest scores are 55.93 and 77.17 respectively, so it can be said that the value of students after being given treatment is different. Then before the paired T-test analysis is carried out on the data that has been obtained, the

**Table 6.** Paired Sample T-Test Results

	Mean	Std. Deviation	Std. Error Mean	Paired Differences		t	df	Sig. (2-tailed)	
				95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1	pretest-posttest	-21.233	8.633	1.576	-24.457	-18.010	-13.471	29	.000

Based on the results of the Paired Sample T-Test calculation using SPSS 23, it is known that the Sig value. (2-tailed) of  $0.000 < 0.05$  so it can be concluded that there are differences before and after treatment.

normality test and homogeneity test of the research data are first carried out using SPSS 23 as a requirement in conducting the paired T-test. The results of the data normality test calculation in Table 4.

**Table 3.** Average Test Score

	N	Min	Max	Sum	Mean	Std. Deviation
Pretest	30	40	70	1678	55.93	9.624
Posttest	30	65	90	2315	77.17	5.676
Valid N (listwise)	30					

**Table 4.** Data Normality Test Results

	Shapiro Wilk		
	statistic	df	Sig.
Pretest	.936	30	.072
Posttest	.939	30	.085

Based on the results of the data normality test in table 3 above, it is known that the df (degree of freedom) value for the pretest value is 30 and the posttest value is 30, it can be said that the number of samples  $< 50$ . Sig. value on the pretest-posttest results of students is 0.072 and 0.085, respectively. So it can be said that the pretest-posttest data values are normally distributed. The homogeneity test can be seen in Table 5.

**Table 5.** Data Homogeneity Test Results

Levene Statistic	df1	df2	Sig.
.172	3	24	.914

Based on the homogeneity test results in Table 4 above, it is known that the sig. value for the pretest-posttest is 0.914, because the sig value.  $0.914 > 0.05$ , it can be concluded that the pretest-posttest data variance is homogeneous. The final stage to analyze the data that has been obtained in this study is to use statistical analysis with the Paired Sample T-Test method.

*Validity of Student Worksheet for Blended Learning Model Assisted by Learning Video*

The validation of the product developed in this study was assessed by two expert lecturers as Expert Judgement. The validation data was obtained by providing a validation sheet to two expert lecturers

along with the product link that had been developed consisting of 15 items covering the three aspects of feasibility to be assessed. From the total validation results of 15 items the i-CVI and s-CVI values are 1, it can be concluded that the validation of the developed product is very high (very good) because it is included in the range  $0.80 < \text{Mean I-CVI} < 1.00$ . According to Sugiyono (2019) a valid instrument means that the instrument can be used to measure what should be measured and can display what should be displayed.

The results of the research conducted are also supported by several other studies related to the validity of student worksheets for blended learning models assisted by learning videos to improve students' creative thinking skills, namely research conducted by Hulu and Dwiningsih, (2021) which states that Worksheets Based on Blended Learning is feasible to use with a very valid category. Because learning is not only limited to questions and answers or discussions, but can utilize the website for online learning so that students are facilitated and able to control learning success independently. Then the research conducted by Putri et al., (2022), concluded that the learning tools developed in the form of syllabus, lesson plans, teaching materials, Worksheets video-assisted blended learning models can be said to be in the very good category (valid). So that the video-assisted blended learning model can make students more active in learning. The results of this study can be concluded that the learning tools with the blended learning model developed in the study are valid to improve students' creative thinking skills.

#### *Practicality of Student Worksheet Blended Learning Model Assisted by Learning Video*

After conducting a validity test related to the developed product, then tested its practicality by distributing a response questionnaire through google form to students of class XI-D SMAN 1 Gerung. The calculation results obtained were 90.67%, including in the very practical category. With this, it can be said that the product of student worksheets for blended learning models assisted by learning videos developed in the implementation of learning in class XI-D SMAN 1 Gerung received a positive response from students. Arikunto (2010) defines practicality in educational evaluation as the ease that exists in the instrument both in preparing, using, interpreting / obtaining results, and the ease of storing it.

This is in line with the results of research by Nursiddieq et al. (2022) in their research stated that the learning tools with the blended learning model developed in the study were very practical to improve students' creative thinking skills. Learning by involving the Blended Learning model is very useful because of the flexibility in choosing time, the occurrence of an

independent learning process and cost-effective. Learners will get more opportunities because they are given the freedom to be in control of their learning success. The results of this study are also supported by the opinions of Irslina and Dwiningsih (2018) and Arsyad (2014) in their research which states that the development of Worksheets with the blended learning model is very practical in assisting learning activities. Audio visual (video) has the advantage of being able to complement the basic experiences of students when reading, discussing, practicing, and others. In addition, videos can also describe a process precisely which can be watched repeatedly if necessary. So it can be concluded that the blended learning model student worksheet assisted by learning videos can make students active in the learning process and can help improve students' creative thinking skills. Because the assumptions of validity and practicality have been met, it is continued with the effectiveness test.

#### *Effectiveness of Blended Learning Model Learner Worksheets Assisted with Learning Videos*

The product effectiveness test in this study was carried out using the One-Group Pretest-Posttest Design, with a pretest before treatment and posttest after treatment. Then before analyzing the Paired Sample T-test on the data that has been obtained, the normality test is first carried out using the Shapiro Wilk method and the homogeneity test of this research data using SPSS 23 as a requirement in conducting the Paired Sample T-test. Based on the results of the calculation of the Paired Sample T-Test using SPSS 23, it is known that the value is  $0.000 < 0.05$ . So it can be concluded that there is a significant difference between before and after treatment. This shows that the use of student worksheets for blended learning models assisted by learning videos to improve students' creative thinking skills is proven effective based on the results of data analysis that has been obtained. According to Daryanto (2013) states that effectiveness is a success of an action. In learning activities, an action in question is a way about approaches, methods or strategies for teachers.

The research results that have been obtained are also in line with research conducted by Sutriyono et al. (2022), that the blended learning model Worksheets can effectively improve students' creative thinking skills. In addition, based on the results of the pretest and posttest, it was found that there was a significant difference between before and after using the Worksheets of blended learning model. Then strengthened by the research of Febriyanti (2014), Sampurna (2017) and Busyaeri et al., (2016) stated that the use of video media has a significant effect on student learning outcomes, because video media can be said to be more effective in the learning process helping students to be more active,

can create an interesting, fun learning atmosphere as well as the videos displayed can focus the attention of students and help students to think creatively. This can happen because learning video media presents moving images accompanied by sound so that it can attract the attention of students to follow the learning process. Likewise, the results of research by Nursiddieq et al. (2022) state that learning devices with blended learning models developed in research are effective for improving students' creative thinking skills. So it can be concluded that the products developed in this study are effective for use in the learning process and improve students' creative thinking skills.

## Conclusion

Based on the results and discussion of this study, it can be concluded that the worksheet for students of blended learning model assisted by learning videos that have been developed can be declared valid, practical and effective to improve students' creative thinking skills.

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## Conflicts of Interest

The authors declare no conflict of interest.

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