

## Development of Interactive Learning Media to Foster the Creativity of Elementary School Students

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### Abstract

Science learning that takes place in elementary schools is still teacher-centered, it can be seen that the teacher's ability to design learning and the use of learning media is still less interactive and less practical so that learning is monotonous, has not used models or media in science learning. The purpose of the study analyzes the validity, the effectiveness of collaboration of interactive learning media and interactive student worksheets with problem-based learning models on mastery of concepts and student creativity. This research is development research (Four-D Models) with stages of defining, design, develop and disseminate. Data collection methods are questionnaires, tests and interviews. This research was conducted in grade V SD Negeri 2 Plantaran SouthKaliwungu District, Kendal Regency. The results showed that the development of learning media to foster student creativity was very valid with a percentage of interactive learning media validation score of 98.33%; Analysis of student responses 65.21%. The effectiveness of the product shows that there is an increase in learning outcomes and student creativity increases with good criteria. The benefits of research results make it easier for students to understand the material provided by the teacher so that student learning outcomes increase. The conclusion of this research is that collaboration in the development of interactive learning media and interactive student worksheets with a problem-based learning model can improve learning outcomes and foster the creativity of elementary school students.

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## INTRODUCTION

Education is an effort designed by the government to educate and advance the nation. A country can be said to be advanced if the country prioritizes education, Education carried out in elementary schools must get special attention because elementary schools are the initial foundation for achieving educational goals in the future. According to Putri (2020), elementary school students have certain characteristics. Elementary school students also have expressive development patterns that can be seen from play activities. Play is one side of children's lives that can provide pleasure to children. Teachers must prepare their students to adapt to various developments in the era of the industrial revolution 4.0. According to Santiasih (2013), technological development is closely related to the development of science so it is very important for students to learn from an early age in elementary school. Thus, learning Natural Sciences can provide direct experience through various scientific skills and attitudes that support the improvement of student learning outcomes.

Science learning in elementary school provides an opportunity for students to cultivate curiosity that happens on its own. Science learning is still based on textbooks so it is considered less interesting, monotonous and boring for students. The science learning process in elementary schools has been more likely to memorize material without finding their own concepts from real situations Ummah (2021).

Furthermore, reinforced by the results of interviews with grade V SD Negeri 2 Plantaran, South Kaliwungu District, Kendal Regency, several problems were found in science learning:

(1) learning is still teacher-centered, (2) students lack initiative in the ability to ask questions, when students are told to ask questions they choose to be silent (3) the teacher's ability to design learning and use learning media is still less interactive and less practical so that learning is monotonous, (4) learning emphasizes memorization, (5) lesson plans only as administrative completeness, and

(6) teachers still do not use interactive learning models or media in science learning.

Educators rarely manifest using engaging learning media. Because it has such a significant impact on how much students learn from their teachers, it deserves special attention. This is in accordance with Agung's research (2011) which states that to facilitate the learning process, teachers continue to use conventional methods in the classroom to be less attractive and dominated by teachers.

Problems that arise, need special attention to increase the understanding and creativity of students through learning design that teaches students. According to Mulyadin (2016) The learning process carried out by teachers is very influential on the learning outcomes of students. According to Ulinuha (2021), one of the lessons applied so that students can construct their own understanding is problem-based learning (PBL). According to Phungsuk (2017) Learning that uses the PBL approach, can make students active, creative and innovative in improving the learning outcomes of students.

Learning media is a means that can be used as an intermediary in learning to increase efficiency and effectiveness in achieving teaching goals, increasing motivation and learning outcomes of students in the learning process. Learning media has great benefits in making it easier for students to learn material, especially learning materials that are difficult for students to understand. Learning media has an important role in achieving learning objectives because through learning media students will more easily understand a learning.

A teacher is required to make an innovation by making technology-based learning media, so that it can attract more interest and facilitate students in learning. This is in line with what was expressed by Ichsan (2018) who said that with the development of technology in this modern era, it makes a teacher have to innovate related to learning media that will be used in the learning process. To implement active learning, teachers are required to use effective ways so as to increase student creativity and interest, one way is to use active, innovative, creative,

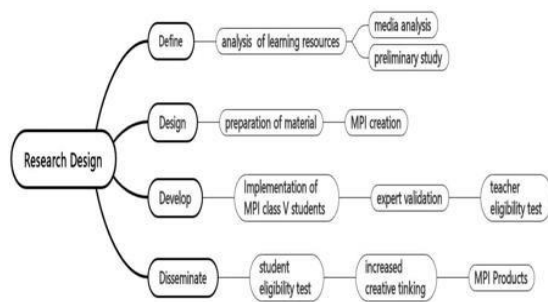
effective, fun, and contemporary learning media Desriana (2018).

Seeing the importance of learning models and developing learning media using interactive learning media can be used as a solution to these problems because learning media functions as an intermediary in delivering information. From the results of this study, it is also expected that the application of interactive learning models and media can apply active learning to increase creativity and interest so as to achieve active, innovative, creative, and fun learning.

The purpose of the study is to analyze the validity of collaboration of problem-based learning models and analyze the effectiveness of collaboration of interactive learning media and interactive student worksheets with problem-based learning models to foster student creativity in grade V elementary schools.

**METHOD**

This research is designed with a development research design or Research and Development. This research design follows the flow of Thiagarajan et al. (1974), namely 4-D (Four-D Models) which consists of four stages, namely the define, design, develop and disseminate stages.



**Figure 1. Research Design**

**1. Defining Stage (Define)**

At this stage, an analysis of learning resources used at SD Negeri 2 Plantaran, South Kaliwungu District, Kendal Regency was carried out and interviewed class V teachers especially on the material of the human digestive system.

The teacher gives instructions to students to study certain material from the textbook and student worksheets, then students are asked to work on practice questions in the student worksheets. This will make students feel bored

and bored. added that there were still some children who got teacher grades below the minimum completeness criteria.

In addition, based on the results of interviews with fifth grade elementary school students, the students lack enthusiasm for learning and do not understand science learning, especially material for the human digestive system, students are sometimes confused about the difference between the esophagus and the throat, because the learning media provided by the teacher is one- way and explanations that are obtained too quickly, besides that students also have limitations in utilizing learning media that are less practical and not interactive so that they have difficulty understanding the material. This happens because the learning media used has not created active learning, while science learning emphasizes direct experience.

Concept Analysis of Development of Interactive Learning Media. This stage aims to analyze important concepts that must be mastered by students. The concept is designed to make it easier for students to understand the material presented. Interactive learning media with models PBL developed is expected to help students in learning the material of the human digestive system in a fun and interactive way. Analyze the important ideas that students need to know. The idea is intended to facilitate students in understanding the information presented. Determine the desired end result achieved in learning with the development of the model problem based learning and collaboration of interactive learning media with interactive worksheets.

The learning objectives to be achieved are that students better understand the material conveyed by the teacher, especially the digestive system material in humans and students are also expected to increase interest in learning, reduce boredom while studying and improve learning outcomes to increase student creativity.

## 2. Planning Stage (Design)

Based on the information collected during the defining stage, determine a more effective and efficient way of developing the initial product design based on the data obtained at the defining stage.

The steps that must be carried out at this design stage are the creation of interactive learning media with models Problem Based Learning human digestive system material to improve students' mastery of concepts and creativity. Making interactive learning media with models PBL the human digestive system material is adjusted based on the analysis of problems and learning resources, analysis of development concepts, and analysis of learning objectives that have been carried out at the definition stage (define). Interactive learning media with models PBL designed with the hope that learning will be more meaningful, interactive and enjoyable.

The product design is adjusted to the ideal product criteria on the criteria for evaluating the validity of interactive learning media. learning model Problem Based Learning developed in the learning implementation plan activities with the hope that learning is more meaningful and enjoyable and interactive learning media includes all material about the human digestive system. Product design begins with establishing a learning model and then collaborating with material loaded into learning media that contains elements of a combination of images with sound, video and games.

## 3. Development Stage (Develop)

Developing products Developing products in the form of collaborative learning model syntax PBL with interactive learning media and interactive worksheets on science subjects as valid and feasible steps and learning resources for grade V in elementary schools.

Preliminary design of interactive learning media with models problem based learning who are consulted with the supervising lecturer, will later receive input or suggestions that become

improvements to revise interactive learning media with models PBL developed.

The results of the development are consulted with the supervisor and revisions have been made, then they will then be validated by material experts, curriculum experts and practitioners.

Teacher's response to interactive learning media with models problem based learning on the material of the human digestive system to increase mastery of concepts and student

creativity is assessed through a teacher response questionnaire in the hope of obtaining input for improvement materials so that the media can be used as a learning medium in class V, especially at SDN 2 Plantaran, South Kaliwungu District, Kendal Regency. After evaluating the validity by material experts, curriculum experts and practitioners, input or suggestions will be received later, and it will be used as a way to improve the product being developed.

## 4. Deployment Stage (Disseminate)

The product dissemination stage developed in this study the dissemination stage is carried out to obtain an assessment of interactive learning media with models problem based learning developed human digestive system material, the dissemination stage was carried out to obtain the teacher's assessment of the product being developed.

Apart from being assessed from the teacher's responses, the syntax of the learning model problem based learning with the collaboration of interactive learning media and interactive student worksheets are also assessed through a questionnaire given to students. This stage aims to perfect the syntax of the learning model PBL with the collaboration of interactive learning media and interactive worksheets and find out whether students feel happy and easily understand the material with the products that have been developed.

This study used a form of One-Group Pretest-Posttest Design. The sample is selected directly on the basis of average student learning outcomes. Because according to Arikunto (2012)

if the number of students is less than 100 then the number of samples is taken all as a whole. The sample of this study was 23 students. The trial technique was carried out on grade V students at SD Negeri 2 Plantaran, South Kaliwungu district. Product feasibility analysis using percentage descriptive test analysis data using a formula from.

Sudijono (2013) is as follows:

$$P = \frac{F}{N} \times 100 \%$$

$N$

Information:

$P$  : the caption being searched

$F$  : frequency of student response  $N$  : number of students

100% : fixed number

The criteria are said to be valid if the score is >61%.

Furthermore, to analyze the effectiveness of collaboration of problem-based learning models with interactive learning media and interactive student worksheets using the N-gain test. For the increase in the average score of the pretest and posttest, the normalized average gain formula is used, which is the ratio of the actual average gain to the maximum average gain. The actual average gain is the difference between the posttest's average score and the pretest's average score. The normalized gain formula is often also called the  $g$  factor, or Hake factor Wiyanto (2008). In the N-gain test the following formula is used:

$$g = \frac{\langle \bar{S}_{post} \rangle - \langle \bar{S}_{pre} \rangle}{100\% \times \langle \bar{S}_{pre} \rangle}$$

Information:

$g$  :  $g$  factor (Hake factor) or normalized score gain value.

1. Highly Effective :  $g \geq 0.7$  or expressed in percent  $g \geq 70$
2. Medium :  $0.3 \leq g < 0.7$  or expressed in percent  $30 \leq g < 70$
3. Less Effective :  $g < 0.3$  or expressed in percent  $g < 30$

There are 3 categories of N-gain test, namely low, medium, and high.

## RESULTS AND DISCUSSION

This research is a research that produces a product in the form of model syntax PBL with the collaboration of interactive learning media and interactive worksheets that are included in the steps of learning activities in lesson plans. States that in the modern era the recommended learning model is student-centered education in which the instructor acts as a facilitator of activities related to education Laguardo (2014).

Thus the active participation of students is seen in learning. One of the learning models that can create cooperation between students is the learning model cooperative learning. The

research design uses a 4D development design, namely 4-D (Four- D Models) which consists of four stages, define through teacher interviews, levels design by creating interactive learning media collaborating with PBL-based interactive worksheets, stage develop the percentage score for the validation of interactive learning media is 98.33%. So it can be concluded that the interactive learning media developed is valid.

The criteria used in assessing interactive learning media devices were developed based on three aspects, namely: validity, effectiveness, and student responses. Meanwhile, the interactive learning media developed in this study has met the aspects of content validity because the content has met the criteria for making interactive learning media which includes aspects of content feasibility and display.

Based on the results of internal testing of the interactive learning media developed, it obtained an internal validity value of 0.725 which is included in the high category. This shows that the interactive learning media developed has a good internal validity index. This can be due to interactive learning media can help students find a concept from the aspect of content feasibility through the presentation of photos or pictures. With instructions

accompanied by photo illustrations/pictures it makes it easier for students to apply and integrate the various concepts that have been found.

Beginning with defining the problem through interviewing teachers of class V SD Negeri 2 Plantaran designing the syntax of the learning model then inserting it into the steps of learning activities in lesson plans, revision of one expert validation of learning media (100%), practitioner validation (97.5%), test the feasibility of teacher responses (97.5%) and student response tests (65.21%). Implementation of learning model development PBL with interactive learning media and interactive worksheets to foster creativity in learning science with a sample of 23 students from SD Negeri 2 Plantaran after being tested for the effectiveness of student learning outcomes, namely 0.7 in the high category and a percentage of 72% with a fairly effective interpretation.

The results showed that the creativity of the experimental class students after experiencing

learning using interactive learning media with the PBL model achieved an average score of 88.68, where the fluency indicator was 82.5%, the flexibility indicator was 90%, the originality indicator was 90%, and the elaboration indicator was 86.88, with an average score of 86.88 which is in the very good category.

On the fluency indicator, students are fluent and creative in explaining causes, effects, goals, and procedures in making ideas and are able to make products according to the material that has been taught, on the flexibility indicator, students are flexible in determining all tools and materials properly. and can respect friends' opinions, on the Original indicator students are able to make their own products (in terms of shape, texture, compatibility, and beauty) so as to produce something new in accordance with procedures that have been made before, and on the Elaboration indicator students are able to describe causes, effects, and processes from data/information obtained in developing ideas from a product in accordance with the concepts that have been studied.

The results of the analysis of students' responses to the application of interactive learning using the PBL model obtained data that the average value of student responses was 79.24 and included in the high category as much as 52.17%. This shows that students have a good response to the application of interactive learning using the Problem Based Learning model that has been implemented.

The application of interactive learning using the PBL model that plays an active role is students not teachers, because the teacher acts as a motivator and facilitator for students and directs teaching and learning activities only. Learning with the application of interactive learning using the PBL model is more impartial and empowers students and encourages students to construct knowledge in their minds.

With the use of interactive learning media using the PBL model, the learning process takes place naturally in the form of students working and experiencing activities for themselves starting from planning, discussing, to solving problems and reporting the results of their discussions, not just the teacher 'pouring' his knowledge/knowledge to students. student.

In addition, the PBL model implemented has seven active learning components, namely: constructive, discovering, asking questions, learning communities, reflection modeling, and actual assessment so that group conditions become more productive.

Learning by applying interactive learning using the PBL model is a learning model that emphasizes the output resulting from discussions conducted by students. The resulting product can be in the form of thoughts, ways of working/procedures, as well as goods/objects that are beneficial to society.

There is a division of the group into small groups to guide and encourage students both individually and to foster cooperation in learning engagement. This method requires students to have good skills in communicating as well as in group process skills.

Teachers and students are important factors in every learning process in the classroom. The teacher as the main and first

element in the learning process requires student involvement in order to achieve learning objectives.

### 1. Defining Stage (Define)

According to interviews, it was found that the weakness of students in learning science is the lack of learning resources. The analysis of learning resources carried out aims to determine the availability of various kinds of resources used to support science learning, especially in the material of the human digestive system. The results of the analysis of interviews with teachers found that the current pandemic transition period, Learning is carried out offline or face-to-face learning on a limited basis. The teacher gives instructions to students to learn certain material from the textbook and student worksheets, then students are asked to do practice questions in student worksheets. This will make students feel bored and bored. The teacher added that there are still some children who score below students worksheets.

In addition, based on the results of interviews with grade V elementary school students, students lack enthusiasm for learning and lack understanding of science learning, especially human digestive system material, students are sometimes confused to distinguish between the esophagus and throat, because the

learning media provided by the teacher is one-way and the explanation obtained is too fast, In addition, students also have limitations in utilizing learning media that are less practical and not interactive so that it is difficult to understand the material. This happens because the learning media used has not created active learning, while science learning emphasizes direct experience. According to class V science learning teachers, the learning resources are inadequate, only print media even though students need creative, innovative and fun learning.

### 2. Planning Stage (Design)

In this stage, media design and planning are carried out. Researchers began to design the media to be developed and prepare learning

materials to be included in the interactive learning media Articulate Storyline. The design starts from making storyboards, making media designs such as the use of attractive backgrounds, image selection, video selection, sound selection and selection of symbols (home, back, next, previous). In the interactive student worksheets design in learning activities, there is a syntax of problem-based learning models.

At the design stage, collaborating interactive learning media and interactive student worksheets. Making interactive learning media for human digestive system material with a problem-based learning model adjusted based on the analysis of problems and learning resources, analysis of development concepts, and analysis of learning objectives that have been carried out at the stage of defining (define). Interactive learning media with the PBL model is designed with the hope that learning runs more meaningful, interactive and fun. Product design is adjusted to the ideal product criteria on the criteria for assessing the validity of interactive learning media. The PBL learning model developed in the learning implementation plan activities with the hope that learning runs more meaningful and fun and interactive learning media includes all material about the human digestive system.

Product design begins with establishing a learning model and then collaborating with material in interactive student worksheets which is contained in interactive learning media which contains elements of a combination of images

with sound, video and games. In the modern era, the recommended learning model is the teacher as a facilitator and student-centered learning in teaching and learning activities. Thus the active participation of learners is seen in learning. A learning model that can create cooperation between students. The learning model can be used properly and maximally, thus influencing the improvement of the educational experience. Students will get used to facing problems (problem posing) and feel challenged to solve problems, Not only related to classroom learning, but also facing problems that exist in everyday life. Learning using PBL will make

students more active because it requires students to think in solving a problem Mulyani (2020).

According to Hotimah (2020) PBL requires students to solve the problems given in order to develop higher-order thinking skills and independence. This learning model also makes students gain knowledge of fundamental concepts from the material that has been taught by the teacher. The problems given are real problems, so that students are able to understand various problems and are able to apply them in life Febriana (2020) PBL emphasizes students as learners and encourages students to use the knowledge they have Dupri (2020) In PBL teachers are facilitators, so students must be active. According to Rosyi (2018) stated that technology applied to learning should be combined with learning models in order to achieve learning objectives. Interactive learning media can also make it easier for teachers to explain abstract material Permana (2015).

In developing student worksheets must contain instructional instructions that are useful to guide students in learning activities to be more meaningful and systematic. Previous research findings stated that digital-based student worksheets makes students not easily bored Indrianingrum (2018). Student worksheets makes it easier for students to learn because it can be accessed anywhere Maimunah (2019).

The advantage of student worksheets is that student worksheets is designed based on technology in collaboration with interactive learning media to make it easier for teachers and students to use it. The student worksheets developed is interactive so that learning activities become more meaningful. In addition, this interactive digital student worksheet is equipped with Practice materials and questions. The purpose of this study is to create interactive learning media collaboration with PBL-based digital student worksheets on elementary school science content. The existence of interactive student worksheets and PBL-based interactive learning media is expected Digital student worksheets based on Problem based learning can help students in online independent learning.

According to Hibra, (2019) states that learning media in teaching and learning activities and is needed to support learning outcomes and student enthusiasm and greatly assist teachers in conveying messages well to students.

According to Lange (2020) stated that the use of media in online learning has been proven to help the learning process by delivering information through various formats. And media can be delivered so that the overall online learning experience can be enhanced.

### 3. Development Stage (Develop)

At this stage the designs that have been made at the design stage will be included in the Articulate Storyline media. One of the multimedia authoring tools used to create interactive learning media. The interactive worksheet creation stage is made using the anyflip platform.

Anyflip is a platform that offers us to create digital books. The process is very easy and simple. The first step that needs to be done is to visit the AnyFlip site. However, before entering the Anyflip site, we already have a file that we will turn into a digital teaching material in the form of a PDF file. The next step is for us to enter the platform page then register to get a user account. To register, we can use our google account or social media account. After registering, then we log in with the account that we registered. After entering the anyflip page, the next step is to click add new book. Type the title of the book that will be created according to the instructions on anyflip. After filling in everything, the last step is uploading files or uploading teaching material files in the form of PDF files to Anyflip. Wait a few moments, then the digital- based teaching materials are complete and ready

to be used and distributed to students by copying the digital teaching materials link.

The stage of developing interactive learning media products in collaboration with interactive worksheets with problem-based learning models, all of which go through the process of validating material experts,



curriculum experts, practitioners, and teacher responses. Here are the results of the Articulate Storyline media shown in the figure 2 and figure

3. Interactive student worksheet view shown Figure 4. while the result of the pretes and posttest can be seen in figure 5

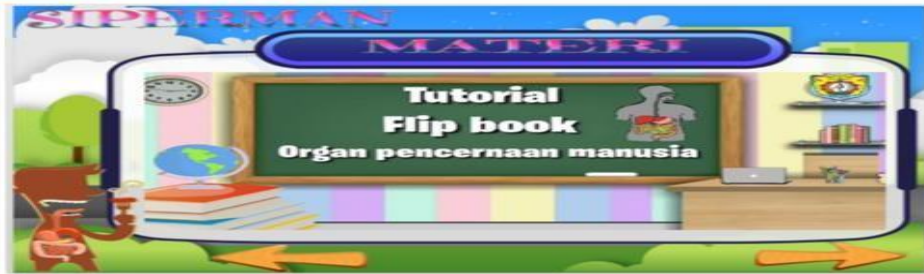


Figure 2. Tutorial Flip Book



Figure 4. Interactive Digital Student Worksheet Display

No	A	B	C	D
1				
2	X			X
3		X		
4			X	
5				X
6			X	
7			X	X
8		X		
9	X			
10	X			
11	X			
12	X			
13				
14	X			
15			X	
16	X			
17	X			
18	X			
19	X			
20	X			

No	A	B	C	D
21				
22				X
23			X	
24	X			
25		X		
26			X	
27				X
28				
29			X	
30				X
31		X		
32			X	
33				X
34	X			
35				X
36			X	
37	X			
38	X			
39	X			
40	X			

No	A	B	C	D
1				
2				
3	X			
4		X		
5			X	
6				X
7			X	
8		X		
9			X	X
10			X	
11			X	
12				
13	X			
14				
15		X		
16				X
17				
18		X		
19			X	
20	X			

No	A	B	C	D
21				
22				X
23			X	
24				X
25	X			
26		X		
27			X	
28				X
29			X	
30				X
31		X		
32			X	
33				X
34	X			
35				X
36			X	
37	X			
38	X			
39	X			
40	X			

Figure 5. Result of the Pretes and Posttest

**4. Disseminate Stage**

This stage is the dissemination of interactive learning media in collaboration with PBL-based interactive student worksheets with a feasibility test questionnaire of student responses with a percentage score of 65.62% included in the feasible criteria, then to determine the effectiveness of grade V students, pretest and posttest were carried out with student learning outcomes of 0.72 with high categories and a percentage of 70% with effective interpretation. So it can be concluded that the collaboration of interactive learning media with PBL-based interactive student worksheets is quite effective for improving student learning outcomes, after that interactive learning media collaborating interactive student worksheets can be disseminated to elementary schools, especially grade V SD Negeri 2 Plantaran and Kyai Guru Cluster.

Based on the results of the effectiveness test of the implementation of interactive learning media in collaboration with PBL-based interactive student worksheets on science learning, class V human digestive system material SD Negeri 2 Plantaran, South Kaliwungu District, Kendal Regency has a positive impact

on cognitive learning outcomes because the results of the effectiveness test of student learning outcomes are 0.72 with medium categories and a percentage of 70% with effective interpretation.

Hypothesis testing is used parametric statistics with a t-test. The results of the t-test are presented in the following table.

**Table 1.** Test Results t data Postes Student Creativity

T	df	Sig. (2-tailed)
2.093	23	0.048

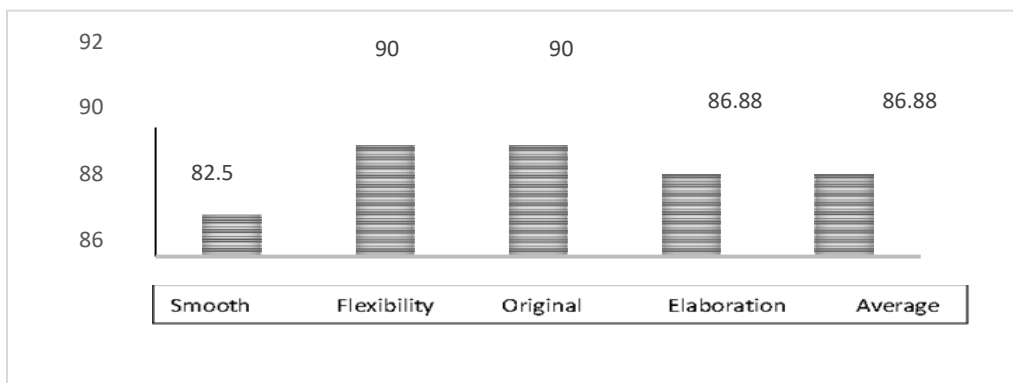
Based on table 1 showing the results of the t test, where the calculated value is  $2.093 > t$  table is 1.96 and the probability value (p) is  $0.048 < 0.05$ , the null hypothesis is rejected, and the research hypothesis is accepted or there is a significant difference from the average difference in student creativity between the experimental class and the control class.

**Table 2.** Description of Student Creativity Observation Data

Creativity statistics	Experimental class
Average rating	86.88
Standard deviation	6.05
Top marks	93.75
Lowest score	75

Table 2 shows that the creativity performance score of experimental class students is 86.88; standard deviation 6.05; the highest score is 93.75; The lowest score is 75.

Based on the results of research in the form of data from observations of student creativity in experimental classes, each indicator can be described graphically as follows:



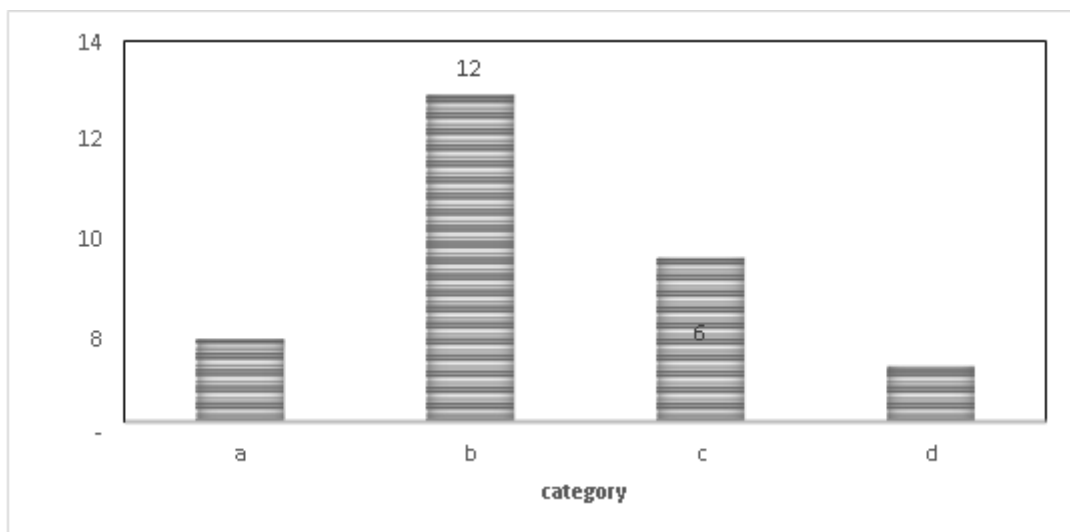
**Figure 4** Observation Results of Creativity in the Experimental Class

Based on figure 4 above, it shows that the implementation of interactive learning media with PBL models on the theme of the human digestive system in the experimental class on fluency indicators 82.5%, flexibility indicators 90%, originality indicators 90%, and elaboration indicators 86.88, with an average score of 86.88 which is included in the very good category.

The graph above also shows the high creativity of students per indicator where the highest creativity indicator in the experimental

class is on the flexibility and originality indicator and the lowest creativity indicator is on the fluency indicator

This study also analyzes student responses to find out how students' attitudes and interests towards the application of interactive learning media through problem-based learning models on human digestive system material. The description of student response data is presented in the following Figure:



**Figure 5** Average Student Response to Media Application

\*Information: ST = 81-87

T = 78-73

R = 75-59

SR = 72-45

The main cause that affects cognitive learning outcomes is because interactive learning media collaborate PBL-based interactive student worksheets has an appeal for students in learning,

Figure 5 shows that The average value of student responses is 79.24 with a standard deviation of 2.55. Based on the results of the descriptive analysis, it can be explained that there are 3 respondents (a) criteria interval 81-87 (13.04%) which is included in the very high category, there are 12 respondents (b) criteria

interval 78-73 (52.17%) which is included in the category high, there were 6 respondents (c)

criteria interval 75-59 (26.09%) who were in the low category, and there were 2 respondents (d) criteria interval 72-45 (8.70%) who were in the very low category. Based on the results of descriptive analysis calculations, it can be concluded that students' responses to the application of learning media using the PBL model are in the high category.

here are some of the advantages of learning media. According to Anggraini (2021) which states that the implementation of Articulate Storyline learning media can support the learning process, this Articulate Storyline can present material by combining (text, images, audio and video), the material delivered becomes more interesting and facilitates

understanding. This Articulate Storyline learning media in the process of its use can provide benefits to educators and students.

According to Hibra (2019), states that learning media in teaching and learning activities and is needed to support learning outcomes and student enthusiasm and greatly assist teachers in conveying messages well to students.

Based on the results of this study, it is known that the results of the development of interactive learning media can help improve students' metacognitive abilities from indicators of planning, monitoring, and evaluating students' mastery of concepts. The results of this study support previous research that the validity test of interactive learning multimedia development shows effective results in improving science learning outcomes so that it is suitable for use in the learning process Ermawati, & Rufaidah (2019)

Learning media is a channel or intermediary used to deliver teaching materials or learning materials Devi (2021). Multimedia also allows to increase children's interest and motivation in learning which often decreases during the Covid-19 pandemic. Multimedia is also a step to stimulate students' understanding of the material taught Manurung (2021).

## CONCLUSION

Based on the results of the analysis and discussion that has been carried out, it can be concluded that the development of learning media to foster student creativity is very valid with a validation score percentage of interactive learning media of 98.33%; analysis of student responses 65.21%. Product effectiveness shows that there is an increase in learning outcomes and student creativity increases with very good criteria. The benefits of research results make it easier for students to understand the material provided by the teacher so that student learning outcomes increase. The conclusion of this research is the development of interactive learning media to foster the creativity of elementary school students can improve learning

outcomes and foster student creativity. Therefore the teacher needs to design an effective and maximum learning model. The Problem Based Learning model implemented through collaboration of interactive learning media with interactive worksheets is the right approach for teachers to choose from to apply learning to material on the human digestive system as a learning method in class, especially in learning natural sciences in elementary schools.

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