

THE DEVELOPMENT OF STUDENT WORKSHEET BASED ON GUIDED INQUIRY IN ENVIRONMENTAL POLLUTION SUBMATERIAL TO PRATICE CREATIVE THINKING SKILL FOR 10TH GRADE OF SENIOR HIGH SCHOOL

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Abstract

The purpose of this research is to develop environmental pollution student worksheet based on guided inquiry to practice creative thinking skills that are valid, practical, and effective. The development of LKPD uses the 4-D method namely Define, Design, Develop, without applying the Disseminate phase. The trial was conducted on 20 students of class X MIPA 5 SMAN 1 Waru Sidoarjo by using a pretest-posttest design. Validity is obtained through validation by education experts and material experts. The practicality of worksheet is measured based on the assessment of the feasibility of learning while using LKPD. The effectiveness of worksheet is measured based on learning outcomes along with student responses after learning using worksheet. Data validity, practicality, and effectiveness analyzed by descriptive quantitative method. The results of research trials show the modus category of validity of LKPD is very valid. The practicality of LKPD is 100% with a very practical category. The effectiveness based on the results of students' creative thinking has increased until 88% with the category of very creative on 4 aspects of creative thinking and based on student responses of 95,42% with very effective category.

Keywords: Validity, practicality, effectiveness, student worksheet, guided inquiry, creative thinking skill.

INTRODUCTION

Thinking skills are one aspect of life skills that are very necessary to get attention and developed through the education process. According to the National Education Association (2010), students in the 21st century are required to have learning and thinking skills known as Four Cs which include critical thinking and problem-solving skills, communicating skills, collaborating skills, and creative skills. This demonstrates that of these four capabilities, creative skills is the one of the most important skills a person could have. The opinion is same with the opinions of Ghufon and Rini (2014) which states that creativity has an important role for life because creativity will produce new discoveries in the field of science and technology. The importance of this creativity is also supported by the education system in Indonesia that is listed in Government Regulation No. 22 year of 2016 on elementary and senior high school national education standards.

Biology learning is often faced with various problems, especially in 3.11 and 4.11 basic competency in environmental pollution materials. This material accommodates activities to explore creative ideas on the issues presented by confronting students in a case of environmental pollution that demands problem-solving. Thus, the level of student creativity can be seen from how

students solve the problem. But in fact, the creative thinking skill student of SMAN 1 Waru Sidoarjo in basic competency has a low level. This because worksheet for basic competency that used by current students is still informative, only contains material summaries and exercises answered questions. Furthermore, the worksheet still impressed monotonous, so the learners are poorly trained in creative thinking activities. In addition, teachers expressed difficulties in teaching creative thinking students because they have not known the learning media used to practice creative thinking skills.

The interview is also supported by research Amtiningsih, et al (2016) which states that the creative thinking abilities of senior high school students is low because the test results describing aspects of creative thinking that includes aspects of *fluency, flexibility, originality and elaboration* had an average percentage of 25.5%. Low ability to think creatively in Indonesia is also shown from the results of Sugiyanto, et al (2018) which explains that the creative thinking skills of students of two high schools in Biology classified low with an average percentage of approximately 28.66% and 13.71%.

This low problem of creative thinking can be trained through learning strategies or learning models. Biology learning model recommended by Permendikbud No. 22 year of 2016 based on the needs of competency development and characteristics of biological material in

curriculum 2013, among them is the model of inquiry learning. Nevertheless, to cultivate students' creative thinking skills in finding solutions from problem-solving in learning, teachers need to provide guidance. Learning with a model of inquiry is thus called the model of guided inquiry. According to, Kuniati, et al (2018) through guided inquiry learning model, students can practice creative thinking skills through mastery of science concepts and conduct research on the problems with the facts. Through guided inquiry models, students perform scientific procedures to identify problems, ask questions, conducting investigatory procedures to obtain solutions or answers.

The use of student activity worksheet can also support guided inquiry model that are used in learning, so that creative skills can be trained. This is because in the worksheet there is a component that contains a summary of the material, training questions, and instructions that contain steps to complete a task as a supporting material for learning other than the teaching book (Prastowo, 2015). The purpose of this study is to describe the feasibility of worksheet based on guided inquiry on sub environmental pollution material to train creative thinking skills student of 10th high school based on the results of validity, practicality and effectiveness.

METHOD

The type of research used is development research. The design of the development model used is 4-D model consisting of Define, Design, Develop, and Disseminate. But, the reseacher doesn't use disseminate phase in this study. The study was conducted in November 2019-February 2020. The subject of this research is a guided inquiry-based worksheet which validated by the validators. They are material expert and education expert. The worksheet tested on 20 students 10th IPA 5 SMA Negeri 1 Waru Sidoarjo which is heterogeneous based on gender, learning outcomes and level of thought and has been considered capable in conducting activities on the worksheet developed.

The method of data collection which used in this research is validation method, implement observational method, response questionnaire method and creative thinking skills test method. The instruments which used in this study are the validation sheet, observation sheet, response questionnaire and creative thinking test sheet.

The data analysis technique which used in this study is a descriptive statistical technique. The first activity is worksheet validation activity. This activity is to determine the validity of the worksheet based on the assessment mode of two validators and analyzed by calculation of the Likert scale as listed in Table 1. Then, based on the score is specified validity category

Table 1. Likert scale assessment criteria for assessing validity

Score	Interpretation criteria
4	Very valid
3	Valid
2	Less valid

Score	Interpretation criteria
1	Invalid

(Adapted from Riduwan, 2013)

The final conclusion of worksheet validity is determined based on category mode from all aspects of the validity based on expert's score.

The second activity is to test the practicality of worksheet. Data is derived from the results of the learning activities conducted by five observers with the instrument of the implementation of learners' activities with the observation method. Percentage measurements refer to the Likert scale as following table.

Table 2. Criteria of Likert scale to assess practicality

Score	Criteria Interpretation
4	Very well done
3	Well done
2	Less done
1	Did not happen

(Adapted from Riduwan, 2013)

The activities of students are stated when they have a performance score of ≥ 3. The deliverable score of the student's activity is subsequently changed in the percent of the percentage value of this learning implementation is derived from the calculation with the formula as follows.

$$\text{Reliability} = \frac{\text{score from all observers}}{\text{total Score}} \times 100\%$$

Worksheet is stated practically if the activity score is ≥ 3 and the percentage of score is 100% and is expressed impractical when earning a percentage of less than 100%.

The third activity is the worksheet effectiveness test assessed based on the analysis of creative thinking skills and students' responses. The results of written tests of pretests and posttest given to students will be analyzed include four creative thinking skills i.e. fluency, flexibility, elaboration, and originality Each component of creative thinking skills is calculated using the following formula.

$$\text{Value} = \frac{\text{sum of scores obtained}}{\text{Total score}} \times 100\%$$

The percentage of each creative thinking component is further interpreted according to table 3.

Table 3. Criteria Interpretation of Creative Thinking Skills Students

Average Score (%)	Criteria
0,00 – 20,3	Uncreative
20,4 – 40,7	Less Creative
40,8 – 61,1	Quite Creative
61,2 – 81,5	Creative
81,6 – 100	Very Creative

(Adapted from Khanafiyah and Rusilowati, 2010)

The analysis of worksheet feasibility based on students responses can be measured through a student response poll based on the following Guttman scale.

Table 4. Guttman Scale to Assess Students' Response

Value Scale	Criteria
1	Yes
0	Not

(Adapted from Riduwan, 2013)

The data acquisition is then calculated the percentage using the following formula

$$\text{Response} = \frac{\text{Students who answered "Yes"} \times 100\%}{\text{Number of students}}$$

The result of calculating the effectiveness percentage obtained is then interpreted according to the criteria in the following table.

Table 5. Response Criteria Interpretation Students

Average Score (%)	Criteria
0 – 40	Ineffective
41 – 55	Less effective
56 – 70	Effective enough
71 – 85	Effective
86 – 100	Very effective

(Adapted from Riduwan, 2013)

Worksheet developed stated effective when it reaches positive response percentage of learners $\geq 71\%$.

RESULTS AND DISCUSSION

The result of this research is to produce guided inquiry worksheet which valid, practical and effective. Worksheet validity is reviewed based on the validation results of education experts and environmental pollution material experts, worksheet practicality is known based on the implementation of students' activities and known effectiveness based on creative thinking and student response skills.

a. Worksheet Validity

The worksheet validation result data by two validators can be seen in Table 6.

Table 6. Summary of Data Validation Results of Guided Inquiry Worksheet

No.	Rated aspect	Mode two validators	Category
A Presentation Eligibility			
1.	Title compliance with subject matter	4	Very valid
2.	Inclusion of learning objectives	4	Very valid
3.	Inclusion of manual activity	4	Very valid
4.	Inclusion of activities procedure	4	Very valid
5.	Inclusion of tools and materials	4	Very valid
6.	The display of worksheet	3,5	Valid
B Linguistic Feasibility			
1	The use of language is good and right	4	Very valid
2	The use of sentence structure clear and easy to understand	4	Very valid
C Contents Feasibility			
1	Learning activities in worksheet	4	Very valid
2	Suitability of learning activities to KD	4	Very valid
3	Material presented in accordance with the concept	4	Very valid
D Guided Inquiry Phase in Worksheet			
1	Worksheet can train the ability of	4	Very valid

No.	Rated aspect	Mode two validators	Category
	orientation problems		
2	Worksheet can train the ability to formulate the problem	4	Very valid
3	Worksheet can train the ability to create a hypothesis	4	Very valid
4	Worksheet can train the ability to collect data	4	Very valid
5	Worksheet can train the ability to test the hypothesis	4	Very valid
6	Worksheet can train the ability to make conclusion	4	Very valid
E Aspects of Creative Thinking in worksheet			
1	Worksheet accommodate <i>fluency</i> aspect	4	Very valid
2	Worksheet accommodate <i>flexibility</i> aspect	4	Very valid
3	Worksheet accommodate <i>originality</i> aspect	4	Very valid
4	Worksheet accommodate <i>elaboration</i> aspect	4	Very valid
On average aspect of creative thinking in worksheet		4	Very valid
Category mode validation results			Very valid

It indicates that the worksheet which was developed belongs to a very valid category in following the specified criteria by Prastowo (2015). This indicates that there is a consistent linkage of any component of the worksheet developed with the characteristics of a guided inquisition-learning model. Worksheet validation results are obtained very valid because the development mechanism is done through several stages adapted from Thiagarajan, et al. (1974) i.e. 1) Curriculum analysis; 2) Analysis of the needs of learners includes the analysis of assignments and concepts; 3) Preparation of worksheet which is consulted with the supervisor lecturer; 4) Revision of worksheet based on input or advice from the guidance lecturer, thus obtained draft 1; 5) Draft 1 further dissemination to obtain input and advice from the examiner lecturer; 6) Second revision so obtained draft 2; 7) Validation of draft 2 worksheet by two validators i.e. education experts and material experts; and 8) The third revision based on the suggestion and input of both validators, thus obtained draft 3. This is supported by the statement Fatmawati (2016) that is to produce quality worksheet it needs to be done development gradually and continuously by going through various stages and revisions to generated valid worksheet.

Worksheet validation consists of several aspects of assessment feasibility, namely presentation eligibility,

linguistic feasibility, content correctness, guided inquiry stages in worksheet and creative thinking components that appear in the worksheet. Five components of presentability assessment i.e. title compliance with subject matter, inclusion of learning objectives, inclusion of activity instructions, inclusion of activity procedures, and inclusion of tools and materials have a category mode the validation result of two validators is very valid. This indicates that worksheet has a good component of worksheet following the rules of the Department of National Education 2008), namely the title of worksheet in accordance with the subject, there are learning objectives, there are activity instructions, activity procedures and inclusion of tools and materials that facilitate students in creating test flows. Among the presentation feasibility components, the worksheet display aspect has an average score of 3,92 from the two validators. This is because of the combination of colors and the appearance of letters that are less proportional to each stage of inquiry in worksheet and the selection of font types that are less precise in the procedure of worksheet. According to Rahmadina, et al (2017) eligibility for worksheet display is closely related to worksheet technical requirement which is a requirement to present a good worksheet. Thus, the combination of writing, drawing, and color contained in the worksheet should be made as attractive as possible and proportional in order to foster the learning interest of learners. Based on this, it is necessary to fix the worksheet display before tested to students.

The second aspect is the feasibility aspect consisting of two components, namely the use of good and correct language and the use of a clear and understandable sentence structure. These two components get an average score of 4 of the two validators. This indicates that worksheet has used the standard language in accordance with the Indonesian Spelling General Guidelines (PUEBI), using simple and raw sentence structures so that students are easily understood. It is supported by the statement of Rahmadina, et al. (2017) stating that the linguistic is a condition of construction of worksheet. Therefore, a good worksheet should use a language that is adjusted to the level of student age development, proper and clear sentence structure and using good and correct language.

The third aspect is the feasibility aspect of content consisting of three components i.e. learning activities at worksheet, suitability of learning activities to basic competencies and the suitability of material delivered with the concept. Each three components have average score 4 of the two validators. Components of worksheet learning activities have a very valid category because the activity has been in accordance with the demands of the 2013 Curriculum which makes students more active in the learning process through hands on activity (Ilma, et al, 2020). In addition, the activities in this worksheet direct students to the concepts that will be taught. This is in line with the function of worksheet that makes it easier for

students to find the concept of a learning material (Prastowo, 2015).

The activities in the worksheet have also been based on the demands of the basic competency, namely Basic Competency 3.11 and 4.11, a learning indicator and there are material suitability and concepts taught. This means that the worksheet fulfills the relevance principle that is oriented towards the achievement of the competence in the prevailing curriculum (Prastowo, 2015).

The fourth aspect of the conformity of the inquiry stages guided in the worksheet consisting of six components each has a very valid category. This is because of the two developed worksheet that has been following with the model of teaching inquiry learning. In addition, the worksheet has also been listed the stages of the learning Inquiry model that is the orientation of the problem, create a problem formulation, hypothesize, collect data, test hypotheses, and make conclusions (Arends, 2013).

The fifth aspect of the conformity of creative thinking in the worksheet that consisting of four components each has a very valid category. This is because of the two worksheet that developed there are four components of creative thinking in every stage of the inquiry guided. The four aspects of creative thinking that include *fluency, flexibility, statement and elaboration* refer to the study by Munandar (2012). The final decision on worksheet validity for all aspects assessed by category mode is very valid.

B. Practicality of worksheet

The practicality of worksheet is reviewed based on student activity. Students ' activities are observed during the learning activities at each phase of the Inquisition guided by the four observers who are S1 biology education students using a student activity observation sheet. The Data of the students ' activities in each phase of the learning Inquisition is presented in table 7.

Table 7. Data Recapitulation Of The Results Of The Implementation Of Guided Inquiry Worksheet

Activity	Average Score 20 Students		Percentage Reliability	
	Workshee t 1	Workshee t 2	Workshee t 1	Workshee t 2
Identify the problem by answering questions on the orientation problem	3,60	3,95	100%	100%
Make formulation of the problem is based on experiments to be performed	3,90	4	100%	100%
Make a hypothesis	3,85	4	100%	100%

Activity	Average Score 20 Students		Percentage Reliability	
	Worksheets 1	Worksheets 2	Worksheets 1	Worksheets 2
based on the formulation of the problem				
Collect data by reading from a variety of sources relevant to the topic / do practicum	3,45	3,90	100%	100%
Test the hypothesis by answering the questions / describe the results of lab	3,40	3,90	100%	100%
Make conclusions based on the results of the study of literature / laboratory using their own words	4	4	100%	100%
The average score of Worksheets 1 and 2	3,83		100%	
Category			Very practical	

The average of final score of worksheet 1 and worksheet 2 has a percentage of 100% in very practical categories. This suggests that worksheet can increase student activity in conducting learning activities. Based on Table.7 , there is an increase in the score between worksheet 1 and 2, this is because when working on the worksheet 2 students have gained previous experience when working on worksheet 1. The learning phase of teaching inquiry presented in the worksheet consists of 6 phases namely the orientation phase of the problem, formulating problems, creating hypotheses, collecting data, proving hypotheses and making conclusions.

Phase 1 is the orientation of the problem obtained average student activity score of 3.60 on worksheet 1 and 3.95 on worksheet 2 with 100% percentage and very practical category. The problem orientation phase presents the source of reading or information relating to real life. According to Lukac (2015) stimulation should be linked to real life or associated with previous material that has been studied. This makes the learning process unimpressed and can increase students ' interest in following further learning activities. At this stage, students are also given several

questions relating to the reading to be discussed with the group. The inquiring and questioning process plays a role in guiding and directing students to discover the concepts learned (Wijyaningputri, et al, 2018).

Phase 2 is formulating a problem based on experiments. The student activity score is 3,90 on worksheet 1 and 4 on worksheet 2 with a percentage of 100% and a very practical category. This phase provides students with fluency. This is because in this stage students provide a number of ideas and questions in order to resolve the problem. Siswono (2006) said that revealing a variety of questions from information is one of the activities that lead to the development of creative thinking.

Phase 3 is a hypothesized. This activity is to achieve the creative aspects of thinking, namely flexibility. The percentage of activity on worksheet 1 is 3,85 and worksheet 2 is 4. In this phase, students are trained to provide temporary answers to the problem. This phase can bring out the flexibility aspects of learners because learners are required to have many ways to solve the problems. This is in accordance with the opinions of Fitri and Septifiana (2013), stating that flexibility ability arises when learners think of many ways to solve the problems. In addition, the hypothesized phase can encourage learners to think intuitively (Smallhom, et al., 2015).

Phase 4 and Phase 5 are guided inquiry phases related to practicum and practicum data processing. The average percentage of these two stages is 100% in worksheet 1 and worksheet 2. Phase 4 and Phase 5 is to achieve the elaboration aspects. At this stage, students have tried to think of ways that are new and unusual for others in conducting investigations to test the hypothesis. Research conducted by learners in worksheet 1 is the manufacture of local microorganisms (MOL) from vegetable garbage to reduce soil pollution. In this topic, learners are required to test some of the parameters of MOL e.g. texture, color, smell, destruction of vegetables and pH. Activity on worksheet 2 is the fitoremediation of detergent waste by using water hyacinth. Learners in worksheet 2 are required to compare the pH of the first day to the seventh day. These two activities will bring out the ability of elaboration. Students will independently find various concepts in these two activities. Elaboration skill allows one to produce new expressions and be able to find unusual combinations (Munandar,2012). Elaboration is able to be trained with the model of inquiry guided through phases 4 and 5. This is because at this stage students always try to enrich or develop existing ideas and analyze more detailed data of existing data.

The last phase is phase 6, which is to make a conclusion based on the results of literature and practicum study. The average execution score of this phase is 100% in worksheet 1 and worksheet 2. This indicates that students have described their findings based on the hypothesis testing results. The final conclusion on

Category (%):

0,00-20,3 : Not Creative
20,4-40,7 : Less creative
40,8-61,1 : Simply Creative
61,2-81,5 : Creative
81,6-100 : Very creative

the practicality of worksheet for all aspects assessed by the implementation

of activity is very practical.

C. Worksheet Effectiveness

1) Worksheets effectiveness is reviewed from the learners ' creative thinking skills

Students' creative thinking skills can be reviewed from learners' answers based on pretests and posttest questions. The number of questions tested each test is five questions with each aspect of the indicator of creative thinking that includes aspects of smooth thinking (fluency), thinking supple (flexibility), original thinking (originality) and thinking detailing (elaboration). Recapitulation percentage of the pre-test score and post-Test creative thinking skills are presented in table 8.

Table 8. Summary of Results of pretest and posttest Creative Thinking Skills

Component	Indicators	Percentage average	
		Pretest	Posttest
Fluency	3.11.1 Create questions based on cases given regarding environmental pollution	35.83% (Less creative)	80% (Creative)
	3.11.3 Predict the impacts of environmental pollution based on the data presented		
Flexibility	3.11.2 Fixed the factors causing environmental pollution based on the data presented.	38.33% (Less creative)	81.67% (Very creative)
Originality	4.11.1 Find solutions to environmental problems based on the data presented	33.33% (Less creative)	86.67% (Very creative)
Elaboration	4.11.2 Create a draft problem solving related environmental pollution cases	20% (Not creative)	88% (Creative)

The results of pretests and posttest, demonstrate that the creative thinking skills of learners have improved. The average percentage of fluency thinking skills at the time of pretests was 35.83% with less creative categories, but after following the study using worksheet, students' fluency skills increased to 80%. The fluency capability focuses on many ideas, answers and questions relevant to

the problem (Munandar, 2012). Based on this opinion, the learning indicators are made accordingly. In worksheet, the fluency ability is trained by identifying environmental issues by making questions, predictions and ideas related to environmental pollution occurring around. According to Siswono (2006), an increase in the percentage of creative thinking occurs because students try to propose the problems by disclosing a variety of questions from information.

The average result of flexibility ability at the time of pretests was 38.33% with less creative categories, but after following the learning by using worksheet, the ability of flexibility increased to 81.67% with very creative categories. Flexibility encourages students to view a problem from a variety of different viewpoints so that they can provide various interpretations (Munandar, 2012). In worksheet, the orientation phase of the problem stimulates the flexibility aspect by providing questions that vary from an object to the problem. The phase of formulating the problem, hypothesizing and making a conclusion also increases flexibility by training students to compose a varied statement related to various solutions in reducing environmental pollution (Anwar, et al, 2012).

The ability of originality has an average pretest percentage of 33.33% with the category of less creative and increased at the posttest to 86.67% with the category of very creative. This improvement occurs because in the worksheet, the phase of collecting data and testing hypotheses train students to be able to prove the truth of the experiment according to their own thoughts or use unique and unusual methods through group discussion activities. According to Munandar (2012) thinking original (originality) causes someone to be able to give birth to new and unique expressions or be able to find unusual combinations of ordinary elements. The ability of originality of students is also trained when they try to give a rebuttal or approval of solutions proposed by other groups.

The average outcome of the elaboration capability at the time of pretests is 20% with the category not creative, but after following the learning by using worksheet, the elaboration capability increased to 88% with very creative categories. The elaboration is able to improve on the model of inquiry guided by collecting data and testing hypotheses. This is because at this stage students always try to enrich or develop existing ideas and analyze more detailed data of existing data. According to Munandar (2012) said that thinking detailing or elaboration causes one to be able to enrich and develop an existing idea.

The elaboration aspect has a higher percentage score increase over other aspects. Siswono (2007) said if the aspect of creative thinking abilities is given a weighted value, then the elaboration aspect occupies the highest position. It is because on the elaboration aspect students always try to develop the previous idea and attempt to add or even itemize more detail in order to be more interesting than before.

Category (%)

0 – 40 : Ineffective
41 – 55: : Less effective
56 – 70 : Effective enough
71 – 85 : Effective
86 – 100 : Very effective

2)

Worksheet effectiveness is reviewed from a student's response

The student data response is a student response to the worksheet that has been developed. The response result is obtained from the student response poll given after learning ended to 20 students of 10th MIPA 5 SMAN1 Waru Sidoarjo. This is the results of the students' response data after learning by used the worksheet based on guided inquiry model.

Table 9. Summary of Data Response Students

Rated Aspect	The Average Percentage Answering "Yes" (%)	Category
Contents Criteria	100	Very effective
Linguistic Criteria	90	Very effective
Presentation Criteria	96,67	Very effective
Graphic Criteria	95	Very effective
The Average Percentage Of Positive Responses Overall	95,42	Very effective

The content criteria had a positive response percentage of 100%. This indicates that the component inquiry guided in the worksheet can improve the understanding of the concept and can train learners in creative thinking through the learning activities presented in each topic of worksheet. This is same with the opinion of Rahmadina, et al (2017) whose stating that the requirements for the preparation of worksheet are able to invite active learners during the learning process, emphasizing the concept of discovery process and have a variety of stimulus with the activities of the students.

The positive response to the linguistic criteria, the presentation criteria and the graphing criteria has a percentage of the score of each 90%, 96,67% and 95% with the category very effective. This suggests that the language used in worksheet is clear and understandable for learners so that students can perform learning activities well. According to Prastowo (2015) learners will understand the material better and provide maximum results when the language used is easily understood by the learners. The next criteria are the presentation criteria. In these criteria, learners argue that the questions in the worksheet are easy to understands, worksheet activities sequential and fun and increase the interest of learning. Susantini, et al (2016) states that the presentation of activities in the worksheet affects variations in the teaching medium so that the teaching medium becomes attractive, motivating, communicative, and helps students understand the content of the material.

The student's response to the graphing criteria has several aspects of assessment, among others: the suitability of the image with the concepts taught on the worksheet, the suitability of the main cover and the topic cover with the materials taught and the suitability of the use of fonts on the At the graphic criteria, the average percentage of positive responses was obtained at 95% with very effective categories. This shows that the background, images, designs, and fonts used in the worksheet are already good and help students understand environmental pollution material. According to Rahmadina, et al. (2017), appearances include a combination of writings, drawings, and colors made as interesting as possible in order to foster a learner's interest.

CLOSING

Conclusion

Based on the results of data analysis, it can be concluded that the validity of worksheet inquiry is guided in environmental sub-pollution of 99,75% with a very valid category, worksheet practicality of 100% with very practical categories, effectiveness based on the results of creative thinking students experienced a percentage increase by 88% with very creative category and student response of 95,42% with very effective worksheet based inquiry guided by sub-material environmental pollution to practice creative thinking skills have been valid, practical, and effective so that it is worthy to be applied in learning.

Advice

The use of worksheet should take into account the allotted time allocation. Therefore, classroom conditioning is an important thing that needs to be improved in the implementation of learning activitie

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