Integration of Madura's Culinary Tourism Potential in Development Practicum Worksheet for Nutrition and Food Tests in Elementary Science Learning

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Abstract

This study aims to develop valid, effective and practical worksheets for testing food content in science learning in elementary schools. This development research uses the 4D development model, namely: Define, Design, Development, and Dessiminate. The results of the validity of the practicum worksheets for testing food content in science learning in elementary schools were obtained from the average results of 2 validators of 95.35% (very valid). The results of the effectiveness of the practicum worksheets for testing food content in science learning in elementary schools were obtained from student response questionnaires of 85.75%, and student learning outcomes tests of 93.75%. The results of the practicality of the food content test practicum worksheets in science learning in elementary schools were obtained from the observation sheets of teacher and student activities of 94.28%. The results of the research and development of worksheets for testing food content in science learning in elementary schools show very valid, very effective, and very practical results so that they can be used as teaching materials in learning science in elementary schools

Keywords – 4D, Madura Culinary Tourism, Worksheet, Nutrition and Food Tests

1. Introduction

Natural Science (IPA) is a science that contains concepts, facts and principles as a way to study nature systematically and scientifically. Natural science or commonly referred to as science includes three main things, namely product, process and scientific attitude. Science as a product is about facts, concepts, theories, laws and principles. Science as a process is how a scientist obtains a knowledge product through scientific action. A scientific attitude is an attitude that is needed during the process of discovering natural science products, such as being curious, critical, open, objective, and so on (Prastowo, 2019). So that in its entirety science can also be called science obtained through the process of observing natural events and phenomena which is carried out systematically, logically and objectively using scientific methods and scientific attitudes to produce facts, concepts, theories, laws and principles to explain various natural phenomena.

Based on the nature of science, science learning in schools should be taught in the way scientists discover science products. This can be done by learning through minds on (cognitive), hearts on (affective) and hands on (psychomotor) (Rustman, 2011). However, this has not been realized well in schools, science learning is only focused on the cognitive part, so that science learning has the impression of being just a product of knowledge that students must memorize. This is not relevant to face the demands of the 21st century. Teaching science as a science, including products, processes and scientific attitudes, can be used as a provision in living everyday life.

Therefore, learning should be linked to the daily life experienced by students. Like the concept of healthy food studied by class V students. The concept in the material about healthy food includes: human digestive organs, how to maintain healthy digestive organs, healthy food, and food that is not good for human health. Food that is good for human consumption is food that contains balanced nutrition, including carbohydrates, protein, fat, vitamins and minerals. Meanwhile, foods that are not good for the body are foods that contain additional

ingredients such as borax or formaldehyde. To learn the concept of healthy food, students can prove whether the content of the food consumed is healthy or not. So students need activities to test food content using several indicators such as Benedict, Lugol, and turmeric juice for food ingredients that students may have consumed or will consume. Through activities carried out by students to prove the food content in a menu that they usually eat, it will help students to be able to choose and decide what food is good to consume, especially food that is not prepared themselves.

Currently, there are many types of food menus that are characteristic and have become one of the culinary tourism destinations in an area. It has even become a trademark of the area, for example "Sinjay Bebek". According to Rakhmawati (2018), duck culinary in Madura is developing positively, inseparable from the existence of Suramadu and religious tourism. The large number of fans of Madurese culinary delights, especially various duck preparations, has encouraged the growth and development of the duck culinary business in Madura. This is also inseparable from efforts to showcase typical culinary delights as the potential of a region, which can be done through branding. So this culinary tour becomes one of the things not to be missed when visiting a certain area.

Culinary tourism which has become one of the icons of the Bangkalan Madura area is "Warung Bebek Sinjay". Bebek Sinjay itself has several branches, but there are two places that are most popular, namely on Jalan Raya Ketengan No. 45 and Jalan Raya Ketengan No. KM. 21. These two places have received consumer ratings 17,842 times and 6,738 times with a rating of more than four stars on the Google Maps application. This shows that Sinjay Duck has the potential to be an excellent culinary tourism destination in Bangkalan. This was also confirmed in Utami and Masreviastuti's 2018 research which stated that brand image and customer trust simultaneously had a significant effect on customer loyalty at Bebek Sinjay Bangkalan by 83%. Another study from Wijaya (2017) stated that 7 out of 10 people would still choose to buy Sinjay Bebek again. The research results also state that consumer motivation, perceived quality and

reference groups have a significant and positive influence on interest in Bebek Sinjay Culinary Tourism. So, it is possible that students have also consumed or will consume the processed duck menu.

In this case, students need to know whether the food menu ordered contains good nutritional components, or whether there are even additional ingredients in it that are very dangerous for the body, such as borax and formaldehyde. By knowing what food ingredients are in the food menu ordered, students can find out whether the food they are consuming is healthy or not.

This needs to be done because class V students are still in the concrete operational development stage. Students at this stage are more inclined to have a mindset in real situations. If students are faced with abstract problems that have never been proven concretely, then students will have difficulty solving the problem. This also applies to material about healthy food. If students are only given the concept that healthy food must contain carbohydrates, protein, fat, vitamins and minerals, then students will not know whether the food they choose meets the criteria for healthy food or not. Because he won't know how to prove this. So students need to prove this through practicum.

Practical activities can be packaged into practical worksheets. According to Prastowo (2013) student worksheet are printed teaching materials in the form of sheets of paper containing material, summaries and instructions for implementing learning tasks that must be carried out by students, which refer to the Basic Competencies that must be achieved. Teaching materials are something used by teachers and students to facilitate learning activities (Kokasih, 2021: 1). Meanwhile, according to Saputra (2021: 12) explains that teaching materials are all forms of materials that can help teachers in carrying out the teaching and learning process. According to Panggabean and Danis (2020: 4) also state that teaching materials are a set of learning materials that are completely compiled from the competencies that students will master in carrying out learning activities. The expert's explanation can be concluded that student worksheet is a

student guide that contains information and instructions for solving problems encountered and for achieving the competencies that must be achieved.

Student worksheet consists of six main elements which include: (1) title, (2) study instructions, (3) basic competencies, (4) supporting information, (5) tasks or work steps, and (6) assessment. Meanwhile, judging from the format, student worksheet contains at least eight elements, namely: (1) title, (2) basic competencies achieved, (3) completion time, (4) equipment or materials needed for the experiment, (5) brief information, (6) work steps, (7) tasks that must be carried out, and (8) reports that must be carried out. Student worksheet contains several components, including the name of the activity, objective of the activity, concept, tools and materials, working methods, observation results, and conclusions for student discussion (Triana, 2021: 15-16).

A practical activity certainly requires guidance for conducting experiments. Sometimes worksheets that are purchased and not made by the teacher themselves do not contain practical guidance in them. In fact, combining student worksheet and practicum guides will be very effective in guiding students to carry out a practicum activity, because by developing student worksheet that function as practicum guides you can make the goals and desires of the content of an activity more in line with the needs of students (Prastowo, 2013).

Based on the description above, research is needed as a solution to exploit the potential in the culinary tourism sector in solving science learning problems. So the researchers will conduct a study entitled "Integration of the potential of Madurese culinary tourism in the development of practical worksheets for testing food content in elementary school science learning".

2. Method

This research uses research and development methods (Research and Development). Development research has the aim of clarifying problems by creating products to solve problems. The existence of development research in the field of education is aimed at creating a product in the form of media,

methods or learning models to solve problems and improve quality in the world of education (Jalinus, et al., 2021: 121). The research and development method or Research and Development (R&D) is a process or steps to develop a new product or improve an existing product, so that it can be accounted for (Nana, 164:2013). Development research has several types of development models that can be used in collecting data so that it has valid value. In this research, the model that will be used by researchers is the 4D development model. The 4D model has 4 stages, namely Define, Design, Development and Dessiminate Thiagarajan, dkk. (1974: 13-176).

The researcher's consideration in selecting the 4D development model was because the model was compatible with the meaning of preparing teaching materials, namely systematic. According to Mulyatyningsih (2014:195) that 4D research and models are often used in research and development of teaching materials such as modules, worksheets and textbooks. The 4D development model is also the basis for developing teaching materials and is described in detail and systematically. Based on this suitability, the research carried out will have a clear flow and it will be possible to obtain maximum results. In developing this teaching material, researchers will use the 4D stages as a whole. At the Dessiminate (distribution) stage, researchers will continue to distribute teaching material products, but the distribution will only be carried out at schools that are used as places for data collection tests.

In this development research procedure, the researcher will provide a procedural plan and research flow using the 4D development model developed by Thiagarajan. The 4D development model has 4 stages which are explained as follows:

1. Define

   The definition step taken by the researcher is to make an initial analysis or estimate of the constraints and objectives of the teaching materials being developed. At this stage there are five steps that can be carried out, namely: (a.) Front end Analysis, (b.) Learner Analysis

(Students Analysis), (c.) Task Analysis (Task Analysis), (d.) Concept Analysis (Concept Analysis), and (e.) Specifying Instructional Objectives (Formulation of Learning Objectives)

2. Design (Designing)

At this stage, there are four activity steps that will be carried out by researchers, namely: (a.) Constructing Criteria Referenced Tests, (b.) Media Selection (Selection of Teaching Materials), (c.) Format Selection (Selection of Formats).), and (d.) Initial Design.

3. Develop (Development)

This stage aims to evaluate products that have been designed and created by researchers in order to obtain input and suggestions from experts. There are several steps as follows: (a.) Expert Appraisal (Expert Validation) and (b.) Developmental Testing (Development Trial).

4. Disseminate

The final activity in the 4D development model is dissemination. This stage aims to ensure that the teaching materials that have been developed can be accepted both individually and in groups. At this stage the researcher will disseminate teaching materials in places used for data collection and testing of teaching materials

3. Result and Discussion

This research is research into the development of teaching materials on geographical characteristics and utilization of the potential of the Madura coast based on scientific approaches for elementary school students. This learning tool was developed using the 4D method, namely: define, design, develop, and disseminate.

The define stage, the step taken by the researcher is to make an initial analysis or estimate of the constraints and objectives of the teaching materials being developed. At this stage there are five steps that can be taken, including:

a. Front end Analysis

The research step carried out at this stage is to carry out an analysis of the teaching materials used in the learning process and the problems faced during the learning process. In the problem analysis process, researchers used questionnaires and interviews. This analysis was carried out by observing the learning process, the use of teaching materials and the condition of the school facilities and infrastructure used as samples. This analysis was carried out to also determine the potential of Madurese culinary tourism and Madurese food menus that can be used in learning.

b. Learner Analysis (Student Analysis)

This stage is carried out to determine the characteristics of students. Researchers will carry out observations and distribute questionnaires before and after learning takes place. This observation is used by researchers to gather information about how teaching materials suit students' characteristics and needs. The information obtained will be a reference for determining the preparation of the model of teaching materials being developed.

c. Taks Analysis (Task Analysis)

This stage is carried out to obtain information about the tasks that must be mastered by students in order to achieve the specified competencies. At this stage, learning indicators are prepared. Making this indicator needs to be adjusted to the existing Basic Competencies (KD). Furthermore, in making teaching materials, researchers present material that can help students to achieve the specified competencies. Apart from that, researchers also mapped the learning content and scientific knowledge contained in Madura's culinary tourism potential and Madurese food menus.

d. Concept Analysis (Concept Analysis)

This stage is carried out to create or determine a material concept that will be used in developing teaching materials. At this stage. researchers mapped the concept by combining the results of task analysis from the curriculum and the potential of Madurese culinary tourism and Madurese food menus. To create teaching materials, it is necessary to carry out an analysis of core competencies and basic competencies.

e. Specifying Instructional Objectives (Formulation of Learning Objectives)

This activity functions to measure student achievement. The formulation of learning objectives is adjusted to learning indicators. Writing learning objectives uses the principles put forward by Dick and Carey (in Arsyad 2014: 88), namely the technique of preparing learning objectives in ABCD format. A=Audience, B=Behavior, C=Condition and D=Degree.

This design stage is the second stage of the 4D development model. In this stage, there are four activity steps that will be carried out by researchers, namely:

a. Constructing Criteria Referenced Test (Constructing Criteria Test)

In this step, researchers use tests to see students' mastery in understanding information from the teaching materials that have been delivered by the teacher (cognitive) and are also used to see the effectiveness of the teaching materials being developed. The preparation of the test that will be given to students is a multiple choice consisting of 10 questions given before (pretest) and after following the learning process (posttest). This was done to determine the effectiveness of learning using tools that have been developed through n-gain analysis of student learning outcomes.

b. Media Selection (Selection of Teaching Materials)

The second activity at the Design stage is selecting teaching materials that will be used in the learning process. The selection of teaching materials is adjusted to the learning objectives and

characteristics of students, this is so that the teaching materials developed are right on target and can help overcome existing problems. The selection of teaching materials is also based on the results of interview and questionnaire analysis at the pre-research stage.

c. Format Selection (Format Selection)

The Format Selection activity is the activity of determining the form of learning method that is appropriate to the characteristics of the teaching materials being developed. The choice of learning method needs to be adjusted to the learning process so that it can run effectively and in accordance with development goals.

d. Initial Design (Preliminary Design)

The step in this activity is designing the teaching materials that will be developed. Making teaching materials begins with collecting reference materials according to the characteristics of students, collecting illustrative images that will be combined with learning materials and designing teaching materials and scientific approach teaching materials. In making teaching materials, several applications are used to arrange the layout of Figures, writing and to arrange themes for teaching materials so that the teaching materials presented look interesting so that they can motivate students to read the teaching materials. The following is the cover of the practical worksheet teaching materials for testing food content in science learning in elementary schools.

Figure 1. cover of student worksheet on nutritional content of food.

The develop stage is the third stage of the 4D development model. This stage aims to evaluate products that have been designed and created by researchers in order to obtain input and suggestions from experts. The following is an explanation of this activity.

a. Expert Appraisal (Expert Validation)

In developing a product, validation from experts is required for the suitability of the teaching material being developed. In this activity, product evaluation is carried out by experts who are skilled and experts in their field. Apart from assessing the teaching material development products being developed, experts or validators provide suggestions for improving learning materials and designs in learning tools that have been prepared by researchers. Learning device validation activities will go through 2 stages, namely the material validation stage and the teaching material validation stage. The percentage of results from validation of material experts through validation questionnaires was 95.23%, while the percentage of results from expert validation of teaching materials was 95.48%. So the teaching materials developed are categorized as very valid.

b. Developmental Testing (Development Trial)

The Develop stage is an activity used to test the design of teaching material products on actual target subjects. The trial was

carried out to obtain response data, reactions and comments from the trial subjects. In the context of developing teaching materials, readability tests are carried out by students. The results of the trial will be used to evaluate teaching materials which will then be tested again until they achieve results that are feasible, effective, practical and truly ready to be used in the learning process. This product trial was carried out twice, namely a limited trial and an implementation trial. The activity in this trial is conducting learning using the Practical Worksheet for Testing Food Content in Science Learning. The observer is tasked with observing the implementation of learning in each learning activity carried out. The activities observed were adapted to the steps or learning activities listed in the Practical Worksheet for Testing Food Content in Science Learning to determine the practicality of the teaching materials. The data that was obtained was then summarized in the following graph.

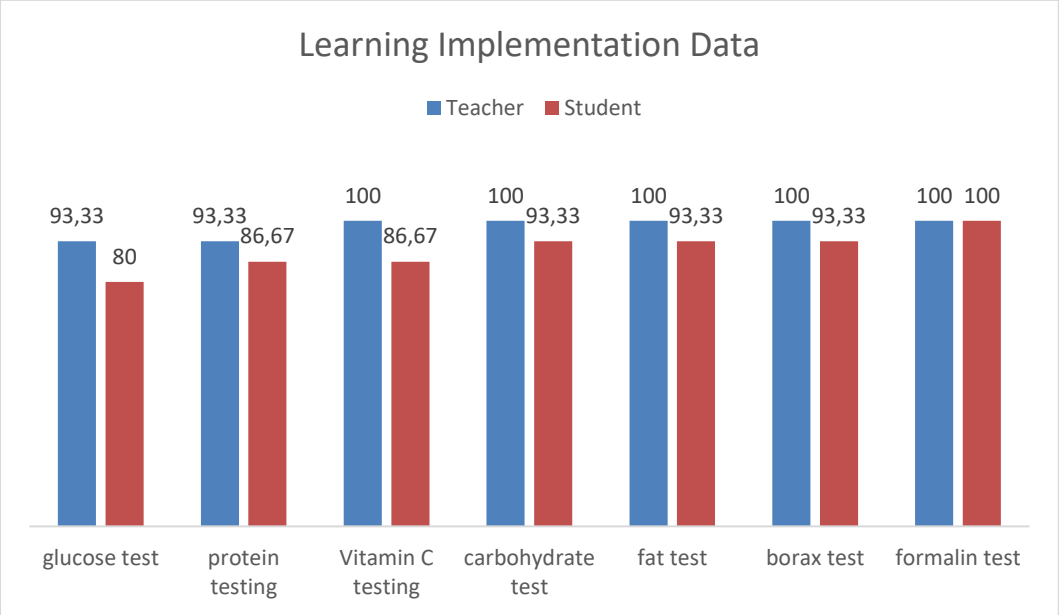

Figure 2. observation graph of teacher and student activities

From the Figure above, it can be seen that the average teacher observation results during practicum activities obtained a percentage of 98.09%, while the average student observation results during practicum activities

obtained a percentage of 90.47%. Thus, the percentage of teacher and student observations is 94.28%.

In this trial, apart from being able to find out the practicality of the teaching materials, you can also find out the effectiveness of the teaching materials. The effectiveness of this teaching material can be seen from the results of student post-tests and student response questionnaires after using the practical student worksheet teaching material for testing food content in science learning in elementary school. Student post-test results can be seen from the following graph:

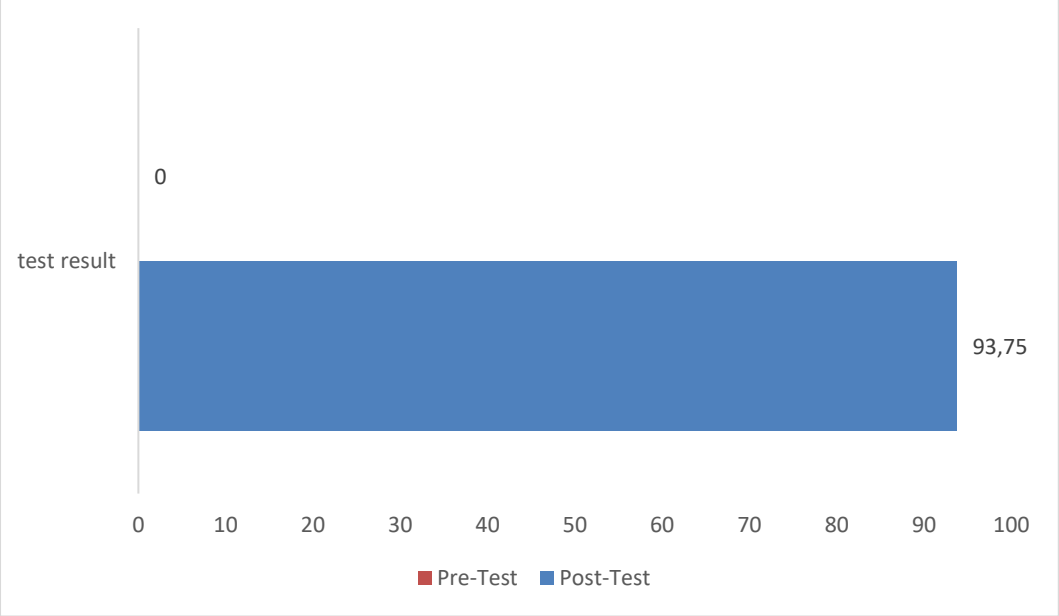

Figure 3. Graph of student test results

Based on Figure 3, it is known that the learning results before learning was carried out using the Practical Worksheet for Testing Food Content in Science Learning, all students were unable to achieve the specified minimum achieved score (75) marked by the percentage of completion value, namely 0%. Meanwhile, the post-test learning results showed that as many as 93.75% of students (30 students out of a total of 32 students in the class) had completely achieved the minimum score achieved that had been determined. This shows that there is a difference in the number of students who can achieve the minimum score achieved before and after learning.

The effectiveness of teaching materials can also be determined from the results of student response questionnaires through student response questionnaire sheets. After learning, students are given a response questionnaire to review the effectiveness of the student worksheet based on students' opinions in using the student worksheet. The following is a recapitulation of the results of student responses.

Table 1. Recapitulation of Student Response Results

No.	Indicator	Percentage % (criteria)
1	Is it easy for you to understand the material through learning with the Food Content Testing Practical LKS?	93.75
2	Does studying using the Food Content Testing Practical Worksheet make you understand the material better?	96,875
3	Would you like to learn about the nutritional content of the food you are going to eat?	93.75
4	Do you find it easier to determine the nutritional content of the food you are going to eat?	93.75
5	When learning is taking place are you active in asking questions?	100
6	Can you estimate what foods are healthy for you to eat?	90,62
7	Do you know that the Sinjay duck food menu is safe for you to consume?	90,625
8	Are you interested in trying to test the nutritional content of other food ingredients?	93.75
9	Can you easily complete assignments regarding the nutritional content of food ingredients?	96,875
10	Are the activities in the worksheet easy for you to do?	93.75
11	The average percentage of student responses was?	94.37

Based on table 1, it can be seen that the average student response results after using the food content testing practical worksheet obtained a percentage of 94.37%.

The final activity in the 4D development model is dissemination. The disseminate stage is the stage of disseminating research products in a particular area. This stage aims to ensure that the teaching materials that have been developed can be accepted both individually and in groups. At this stage the researcher will disseminate teaching materials in places used for data collection and testing of teaching materials. This stage was not carried out in this research because it requires special permission from the local education office, requires a

larger sample (students from various schools), takes longer and costs a lot to duplicate the product.

Culinary tourism is tourism that is influenced by the desire to visit places where food is made, food festivals, restaurants, or a location with the aim of trying to taste food (Hall et al., 2003). Madura is one of the regions in Indonesia that has local potential that has not been developed much. So far, the only heritage potential that has been relatively developed is batik potential (Rakhmawati, 2015). Apart from batik, Madura's local culinary delights have the potential for local wisdom that can be developed into a branding icon. Madurese duck culinary can be used as a strategy to compete in the era of global capital competition. Commodification of Madurese duck culinary as a local potential for branding the region. (Rakhmawati, 2018). Of the various culinary delights in Madura, it is linked to elementary science learning, it can make elementary science learning related to content testing through practicums using practical worksheets for food content testing in elementary school science learning more fun and students know the content of food in their area.

It can be seen from the validation test that the percentage result was 95.35%, which states that the practical worksheet for testing food content in science learning in elementary school is very valid. In the effectiveness test, seen from the post-test results, a percentage of 93.75% was obtained which stated that the practical worksheets for testing food content in science learning in elementary schools were very effective. Furthermore, judging from the student responses, a percentage of 85.75% stated that the practical worksheets for testing food content in science learning in elementary school were very valid and very effective. In the practicality test, it was discovered from teacher and student observations that a percentage of 94.28% was obtained which stated that the practical worksheet for testing food content in science learning in elementary school was very practical

4. Conclusion

This development research developed practical worksheets for food content testing in science learning in elementary schools. "This development research uses a 4D development model which consists of 4 stages, namely Define, Design, Development and Dessiminate. . The aim of this development research is to determine the validity, effectiveness and practicality of food content testing practical worksheets in science learning in elementary schools.

The validity of this practical worksheet for testing food content in science learning in elementary schools can be obtained from 2 expert validation results, namely teaching material expert validation and material expert validation. According to the results, the percentage of validation from teaching material experts was 95.48% and material experts got a percentage of 95.23%. Based on the validation results, it can be stated that the teaching materials are very valid.

The effectiveness of this practical worksheet for testing food content in science learning in elementary schools can be obtained from tests on student learning outcomes, as well as student response questionnaires. The students' post-test results after using the food content test worksheet obtained a percentage of 93.75%, namely 30 students out of a total of 32 students in the class completed the specified KKM. The results of the student response questionnaire obtained a percentage of 94.37%, which means that this food content test worksheet is classified as very effective teaching material.

The practicality of food content testing practical worksheets in science learning in elementary schools is obtained from the results of teacher activity observation sheets and student activity observation sheets. The results of the student and teacher activity observation sheets obtained a percentage of 94.28%, which means that this food content testing practical worksheet is classified as very practical teaching material. The conclusion from all the data obtained is that the practical worksheets for testing food content in science learning in elementary schools from exploring the potential of culinary tourism in Madura are very valid, very effective and very practical.

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