

DEVELOPMENT OF STUDENT WORKSHEET BASED ON SCIENTIFIC APPROACH IN ENGLISH LEARNING AT SMA N 2 KOTA BENGKULU

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Abstract: The objective of this study was to produce student worksheet which is valid based on scientific approach. Research and development design was used for this study. The research was conducted at Tenth Grade Students of SMAN 2 Kota Bengkulu. Data collecting techniques used were student worksheet validation and lesson plan validation. The Data were analyzed using descriptive analysis of quantitative and qualitative. Based on the results of an assessment 93% of all student worksheets components were valid and lesson plan developed from all components were also valid with 80% reliability. It can be concluded that student worksheets developed by researchers is in the feasible category.

Keywords: student worksheet, scientific approach

INTRODUCTION

One form of government efforts to improve education in the learning process is to renew the old curriculum into the curriculum 2013. The 2013 curriculum is developed to change the mindset of learners in the learning process (Julianti and Sumarmin, 2018). Learning process in Curriculum 2013 implemented with the scientific approach. According to Hosnan

(2014), learning to approach scientific is a learning process that is designed so that learners are actively constructing concepts, laws or principles through the stages observed (to identify or find the problem), to formulate the problem, propose or formulate hypotheses, collect data with a variety of techniques, to analyze data,

draw conclusions and communicate the concept, law or find the principle.

To create a good learning, teachers should also give students the opportunity to play an active role in any lessons. Activity and independence of students must appear in each of the learning process, or in other words the students become a subject of study (Marjan, Arnyana, and Setiawan, 2014). One alternative is to do the teacher for students to participate actively and independently to develop knowledge is to use student worksheet.

Student worksheet also used for students to find a concept independently to solve any problems. Based on preliminary observations in 2017, student worksheet used in English learning still need to be developed. Most of student worksheet that exist only emphasizes a brief description of a chapter of learning and gives students the opportunity to be able to find the concept of a material independently so impressed student worksheet is a summary

of the material and a collection of matter. Student worksheet that as it will reduce students' competencies in reasoning or interpreting an existing problem. In fact, the existence of student worksheet in learning, especially learning English is to be able to assist students in improving the ability of reasoning and interpretation problems of English (Julianti and Sumarmin, 2018). Therefore, it is necessary to develop student worksheet that can enhance the activity and independence of students so that students feel challenged to perform a troubleshooting.

Based on the problems as mentioned above, the researchers gave the solution by developing student worksheet use Scientific Approach. Related to the explanation above the main objective of this study is to produce student worksheet which is valid based on scientific approach.

METHODOLOGY

In accordance with the problem and research objectives, this study is designed in the form of research and development. According to Sugiyono (2012), research and development is a research method used to produce certain products and test the effectiveness of these products. The objective of this research was produced a material, either in the form of hardware or software. Teaching material development model that used in the research was ADDIE model. It was developed by Dick and Carrey (1996). Five phases of this development model includes Analysis, Design, Development, Implementation, and Evaluation. However, in this study, only until the development phase. Implementation phase and evaluation phase will be continued in the future studies.

Research procedures are given in the following figure.

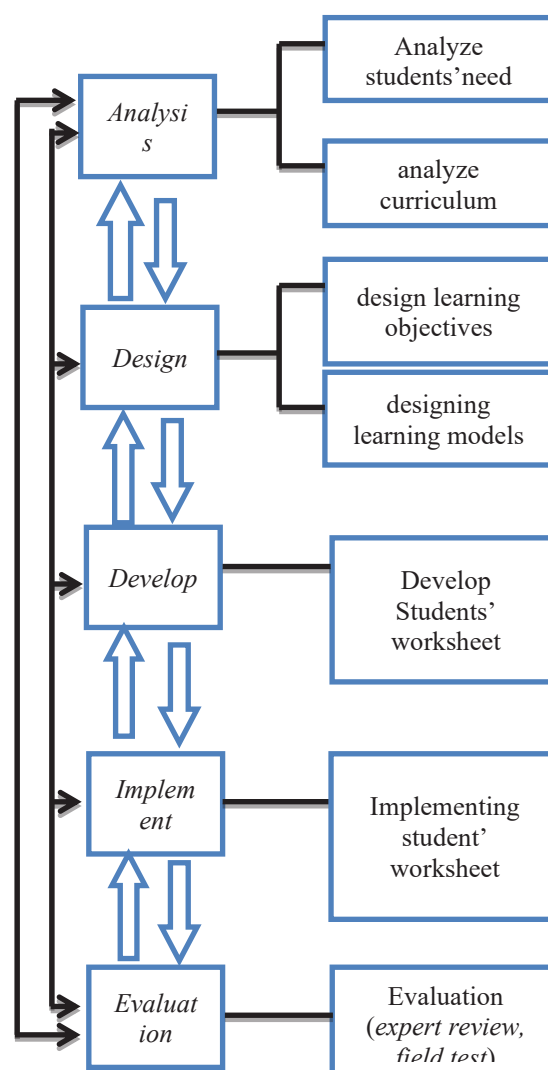


Figure 1. Diagram development ADDIE Model

ADDIE model development stages as follows (Dick and Carrey, 1996):

1) Analysis phase

Analysis of the need to define the problem and the appropriate solution and determine student competency.

2) Design phase

This phase required a clarification of learning programs that are designed so

that the program can achieve the learning objectives as expected. In this phase, researchers determine specific competencies, models, teaching materials, as well as learning models.

3) Phase Development

This phase, the activities undertaken are producing programs and teaching materials to be used in students' worksheet. In this phase, researchers make the lesson plan and scientific pieces of text based.

In this study, researchers only done until the development phase. It was because of the limitations of time and cost are provided. While, the implementation phase and evaluation phase will be conducted on next research.

This study was conducted at SMA N 2 Kota Bengkulu. Instruments used in this research was validation sheet. There were two validation sheets used by researchers namely student worksheet validation and lesson plan validation. Student worksheet validation used to

obtain data on the opinion of experts on teaching materials are arranged on a preliminary draft. While the lesson plan validation used to see that lesson plan have been fulfill the standard criteria of good lesson plan. Then data were used to be guidance in revising the teaching materials developed.

Table 1
Options Answers and Scores for Validation Sheet

| Answer options | Score |
|----------------|-------|
| Not suitable | 1 |
| Less suitable | 2 |
| quite suitable | 3 |
| Suitable | 4 |
| Very suitable | 5 |

Student worksheet validation data obtained from sheets of validation by a team of experts. Then the data is an expert team of data used to analyze and as a scientific approach based student worksheet revision.

The validity of the analysis used to revise student worksheet based on input from the validator. The stages of the validity of the analysis are:

1. Validator provides a score for each indicator with a scale of assessment that is not suitable (1), less suitable (2),

quite suitable (3), suitable (4) and very suitable (5).

2. Scoring validity with the following formula:

$$\bar{V} = \frac{\sum_{i=1}^n RA_i}{n}$$

(Khabibah, 2009)

Information:

\bar{V} : Average total validity

RA_i : Value indicator to-i

n : Many indicators

3. Matching the average value of total validity obtained from the above formula with the validity criteria as follows.

Table 2
Criteria Validity of Student Worksheet

| Interval Scores | Criteria | Category |
|-------------------------|--------------|--------------------------------------|
| $1 \leq \bar{V} < 2$ | Invalid | can not be used and the total change |
| $2 \leq \bar{V} < 3$ | Valid enough | Can be used with many improvements |
| $3 \leq \bar{V} < 4$ | valid | Can be used with little improvement |
| $4 \leq \bar{V} \leq 5$ | very valid | Can be used without repair |

(Khabibah, 2009)

Indicators success of this study is student worksheet be valid if the assessment result sheet shows the validity of the category of "valid".

RESULTS AND DISCUSSION

Results of student worksheet development based on scientific approach is described as follows.

Student Worksheet Validation

Validation is a statement of valid/invalid of towing experts on various aspects assessment which is exist in the validation sheet and the truth of the contents. Each teacher in the educational unit is obliged to draw up the lesson plan completely and systematically in order to emphasize the development and improvement of students' thinking, which centered learning for the student to participate actively, interactive, creative, team-based, multimedia-based, critical learning, independence in accordance with flair , interests, and physical and psychological development of students.

Lesson Plan Validation

Based on higher education curriculum guidelines Ministry for Research, Technology and Learning Directorate General Student Learning and

Learning Directorate in 2016 that the preparation of the lesson plan contains several important elements of which is the name of the school, subject, class, semester, topics and time allocation. Lesson plan are developed based on scientific. The next lesson plans have been developed by researchers validated to provide ratings and feedback on the lesson plan.

The main components are assessed against the lesson plan have been developed and the results of the feasibility assessment lesson plan using instruments can be seen in the following table:

Table 3
Assessment Validation of Lesson Plan

| No. | Rated Aspect | Score | | | | |
|-----|---|-------|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 1 | Write down the names of subjects | | | | | √ |
| 2 | Write the name of the teachers and principals | | | | | √ |
| 3 | Write down the weight and half | | | | | √ |
| 4 | Jot core competencies | | | | | √ |
| 5 | Jot down basic competence | | | | | √ |
| 6 | Writing down learning materials | | | √ | | |
| 7 | Writing down the learning method | | | | | √ |
| 9 | Jot down the | | | | | √ |

| | | | |
|----|---|---|---|
| | operational measures | | |
| | Suitability learning model | | |
| 10 | of problem based learning and scientific approach | √ | |
| 11 | Write down the execution time allocation | | √ |
| 12 | Writing down the learning media | | √ |
| 13 | Write down the assessment criteria or indicators | | √ |
| 14 | Jot weight rating of each meeting | √ | |

Based on the assessment, 80% of all components are valid. It can be concluded that lesson plan developed by researchers in the category to be continued on a limited trial class.

Student Worksheet

Student worksheet developed based on scientific approach. The results of the feasibility assessment student worksheet by using instruments can be seen in as follows.

Table 4
Results of Feasibility Assessment Student Worksheet

| No. | Rated Aspect | Value | Category |
|-----|------------------|-------|----------|
| 1 | Direction | 4 | Good |
| 2 | Writing approach | 3 | Good |
| 3 | truth concept | 3 | Enough |

| | | | |
|----|-------------------------------|---|----------------|
| 4 | depth concept | 4 | Good |
| 5 | the breadth of the concept | 4 | Good |
| 6 | clarity sentence | 4 | Good |
| 7 | linguistic | 4 | Good |
| 8 | student activity | 4 | Good |
| 9 | physical appearance | 3 | Good Enough |
| 10 | feasibility contents | 4 | Good |
| 11 | Question | 4 | Good |

Based on assessment 93%, all components students' work sheet are valid, it can be concluded student worksheet developed by researchers in the category feasible.

Based on the result of design, student worksheet development based on Scientific Approach in English Learning at SMAN 2 Kota Bengkulu is valid. The results can be seen from the following discussion:

Validity

Validation of the learning media includes validation of lesson plan, and student worksheet. Results validity showed that (1) Lesson Plan which was developed from all of the components were valid with reliability of 80%, (2) the validity of student worksheet, showed 93% of all

components student worksheet were valid.

The result showed that achievement indicators already fulfilled $75\% \geq$ (Borich, 1994).

CONCLUSION

Validity development of students worksheet based on scientific approach in Learning English at SMAN 2 Bengkulu Kota Bengkulu which has been developed in aspects of the lesson plan, and student worksheet, are valid based on the results of the validation.

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