Asian Journal of Science Education

Journal homepage: http://jurnal.unsyiah.ac.id/AJSE/

The Development of Student Worksheet to Support ICARE Learning Model on Optical Equipment Material

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(Received. 16/12/2019. Revised. 02/01/2020. Accepted. 26/03/2020. Published. 20/04/2020)

ABSTRACT

This research aimed to determine the feasibility of the development of student worksheets to support ICARE learning model on optical material in MAS Darul Ihsan Aceh Besar. Student worksheets developed based on the elements found in the ICARE learning model. The type of research was Research and Development (R&D) and the development design used in this research was ADDIE namely Analysis, Design, Development, Implementation and Evaluation. Student worksheets assessed by the validation team obtained a percentage of. 84.2% with excellent category, then the students' responses gained a percentage of 82.5% with excellent category. Therefore, students' worksheets to support ICARE learning model on optical material was appropriate to be implemented in learning process.

Keywords: Student worksheets, ICARE learning Model

INTRODUCTION

Education is a conscious and planned action to create a learning atmosphere and learning process so that students are able to develop their potential and skills (Sanjaya, 2008: 2). One of the efforts is by implementing a curriculum that supports the education. According to Machali (2014: 72) curriculum is capable in directing the learners to adapt to their environment, both physical and social environments that are constantly changing.

The development of curriculum 2013 is currently prioritizing learning by educators and direct experiences and processes of learners. The implementation of curriculum 2013 is expected to encourage students to think more creative, innovative, fast, and responsive and prioritize the principle of religion in life, being a person who has contributions to the development of society and Nation.

Part of the components in the curriculum such as learning tools, effective learning process and supportive learning media are important in implementing the curriculum because it relates to the learning system that packed in curriculum. According to Mahnun (2012: 33)

To cite this article: Hamid, A,. Ngadimin, & Azwi, N. (2020). The Development of Student Worksheet To Support ICARE Learning Model on Optical Equipment Material. *Asian Journal of Science Education*, 2(1), 56-63. DOI: 10.24815/ajse.v2i1.15130

Media is part of the learning components. Benefits and function of media in the learning are perceived by both educators and learners. According to Latifah (2016: 44) Learning resources and learning media that help learners and educators are student worksheets. The purpose of students ' worksheets is to improve student performance.

One of the causes of student low achievement is that educators still apply the most popular learning method. According to Lutfiah (2014) one of the causes of low achievement because the learning process is still dominated by educators and does not give learners the opportunity to develop their abilities. Physics is still considered difficult by the learners especially the material taught is abstract. Educators are expected to choose a model or learning method that matches the learning process. According to Sinabariba (2017) learning model can be interpreted as a systematic procedure in organizing the learning experience to achieve the learning objectives.

One of the proper models is ICARE learning model that can be implemented in curriculum 2013. According to the Ministry of National Education "The use of ICARE model greatly gives learners opportunities to apply what they have learned". Similarly, Wahyudin (2010: 31) also states that ICARE is a learning model that organizes learning activities in a more contextual oriented life skills, and learning approach focus on: active, creative, and joyful learning.

The results of research conducted by Dwijayani et al. (2017) concluded that: ICARE learning Media met the criteria for validity, practicality, and effectiveness. Development research was also conducted by Mustofa (2017: 67), stating that "products developed are appealing for learning in a classifying and independently class and then the result of expert validation and testing of ICARE learning models on Class expansion is feasible ".

Problem of Research

The researcher has conducted discussions with one of physics teachers in the targeted school as a pre-research observation. Based on the discussion, the researcher obtain the information that educators are still putting popular learning tool. Learning plans and student worksheets are made only to support school administration. Educators are expected to develop teaching materials and media to suit the demands of the curriculum by considering the needs of learners. Good selection of media is also needed in the learning process that gives learners the opportunity to be actively involved.

The use of learning media that supports for experimental activities, laboratory for instances, has not been adequate as a learning resource. According to (Trianto, 2009: 223), "The knowledge and understanding of learners is empowered through the provision of media learning in every experimental activity so that learning situation becomes more meaningful, and impressive".

Research Focus

Based on the advantages that the ICARE learning model has, the researcher plan to develop an alternative media supporting the ICARE model called students' worksheets to provide the opportunities for learners in applying the concepts obtained. According to Suyitno (Fannie, 2014:98) student worksheets are one of the alternative learning for learners because student worksheets help them to add information about concepts learned through activities Study systematically.

METHODOLOGY OF RESEARCH

General Background of Research

This research was conducted in MAS Darul Ihsan Aceh Besar which located in Tgk Glee Road, District of Siem, Darussalam, Aceh Besar. This study conducted in the second semester of 2018/2019 academic year. The research time was from April 27 to July 20, 2019. While the assessment conducted by the LKPD validation team held from 28 April to 17 May 2019 in UP-PPL and Micro Teaching room of Syiah Kuala University.

Sample of Research

Samples are part of the number and characteristics that the population belongs to. According to Arikunto (2010:117) "samples are part of the population (partial or population-researched representatives). The subject in this study was 28 students of the X-IPA 4E class in the MAS Darul Ihsan 2018/2019. While the object in this research was ICARE learning model.

Instrument and Procedures

In this research, There were two types of instruments collected, namely the validated students' worksheets and students' response sheet. Validated students' worksheets whicht support the ICARE learning model was validated by two validators i.e. lecturers of physics and Mathematics education, Faculty of Education to Assess the feasibility of students worksheets. The validation sheet in this study was a written statement. Each validator provided an assessment of the students worksheets that have been developed by giving a score of five (very good) or a score of four (Good) or a score of three (Enough) or a score of two (Poor) or a score of one (very poor). After the assessment conducted by the validators, the validation sheets was handed out to the researcher tobe analyzed descriptively qualitative.

The student response sheets in this study was 10 written questions. Alternate choice of the answer is a score of five (very good) or a score of four (good) or a score of three (enough) or a score of two (poor) or a score of one (very poor) and provide a reason on each answer. This response sheets were given to learners after teaching and learning activities using students worksheets to support ICARE learning model that has been developed, then learners provide assessments and Responses to the students' worksheets. Once the assessment

hadconducted, student's response sheets were handed out to the researcher to be analyzed descriptively quantitative.

Data Analysis

Technical analysis of data in this study by using validated student worksheets that have been validated by validators and the response sheets that have been filled by the learners after using the students worksheets developed in teaching and learning activities. The results of the feasibility validation of students' worksheets media to support ICARE learning model then analyzed by calculating the average percentage using the formula (Yusrizal: 2016):

$$Eligibility = \frac{Number\ of\ accrural\ Score}{Maxsimum\ Score}\ x\ 100\%$$

Table 1. Percentage Scoring of Media Feasibility Assessment

No	Score	Criteria
1	0-20 %	Extremely Inexpedient
2	21-40 %	Inexpedient
3	41-60 %	Enough
4	61-80 %	Expedient
5	81-100 %	Extremely Expedient

(Source: Arikunto et al, 2010: 35)

Student feedbacks obtained from the results of students responses. The response data obtained then analysed using the formula (Sudijono, 2010: 43):

$$P = \frac{f}{N}\ x\ 100\%$$

Description:
P = Percentage
f = Frequency
N = Total respondents

Table 2. Score of Student Feedback Sheets

No	Achievement level (%)	Qualifications
1	0-21	Very Poor
2	21-40	Poor
3	41-60	Enough
4	61-80	Good
5	81-100	Excellent

(Source: Arikunto et al, 2010:35)

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RESULTS AND DISCUSSION

Before the research was conducted, the researcher prepare a study plan as a reference for learning activities using ICARE learning models. Then develop the previous students worksheets based on the learning model found in the prepared study Plan. The adjusted Student worksheets then validated by the validator and implemented to students in MAS Darul Ihsan Aceh Besar.

The results of the validation of the student worksheets for ICARE Learning model on optical material by 2 validators has a percentage of 84.28% with extremely expedient valuation category. In the introductory aspect the score of the average percentage of 90% of the two validators. The results of a learning objective on students' worksheets scored of 80% of two validators with decent categories.

Based on the assessment results on linking new materials with something already known to the learners from previous experience, the average percentage was 80% from two validators. The result of the application criterion applied was obtained 90% while the assessment result of learning content implementation in activities obtained an average percentage of 80% from two validators.

Based on the assessment results of reflection criteria which aimed to reflect what has been learned is through the discussion, the average percentage score was 90% from two validators. Assessment results on evaluation which provides learners the opportunity to learn more with further information that is the process of providing additional learning opportunities with links to more information, Get an average percentage score of 80%. Thus, it can be noted that the five stages of the ICARE learning model have been met so that the student's worksheet to support the ICARE learning model on optical equipment material is appropriate in the teaching and learning process.

Students feedback to the languages used in the student worksheets received excellent responses from 9 learners with a percentage of 32.1%, Good responses from 12 learners with a percentage of 42.9%, and 7 learners gave enough category as their responses with Percentage of 25%. Feedback to the use of student worksheets for ICARE learning model received excellent responses from 8 learners with a percentage of 28.6%, 16 learners gave good responses with a percentage of 57.1%, and 4 learners gave enough responses with Percentage of 14.3%.

Student responses on adjusted student worksheets ICARE learning model can improve motivation for learning optical equipment materials got excellent responses from 11 learners with percentage of 39.2%, good responses from 12 students with a percentage of 42.9%, and enough from 5 learners with a percentage of 17.9%. Responses to how learning

materials are presented using student worksheets and ICARE learning model got excellent responses from 14 learners with a percentage of 50%, good from 8 learners with a percentage of 28.6%, and enough from 6 learners with a percentage of 21.4%.

Student feedback on using ICARE learning model supported with students' worksheets can create an interesting learning atmosphere got excellent responses from 13 learners with a percentage of 46.4%, good from 9 Students with a percentage of 32.1%, enough from 5 learners with a percentage of 17.9%, and only 1 student gave poor response with a percentage of 3.6%. Responses to the display contained in the students, worksheet made it more interesting got excellent responses from 9 learners with a percentage of 32.1%, good from 13 learners with a 46.4%, and enough from 6 Students with a percentage of 21.4%. The student's response to the practical steps found in students' worksheets is very logical and systematic to be followed in the learning got excellent responses from 10 learners with a percentage of 35.7%, good from 12 learners with a percentage of 42.9%, and enough from 6 learners with a percentage of 21.4%. Responses to the students' worksheets in a short period of time received excellent responses from 7 learners with a 25% percentage, good from 10 learners with a percentage of 25%, and enough from 10 learners with percentage of 25%, and poor from 1 student with percentage of 3.6%.

Student feedback on getting more learning experience by using student worksheets based on ICARE learning model got excellent responses from 12 learners with a percentage of 42.9%, good from 12 learners with a percentage of 42.9%, and enough from 4 learners with a percentage of 14.2%. Responses to actively involved in learning groups using the ICARE learning model supported by student worksheets received excellent responses from 9 learners with a percentage of 32.1%, good from 16 learners with a percentage of 57.1, enough from 2 learners with a percentage of 7.1%, and poor from 1 student with a percentage of 3.6%.

CONCLUSIONS

Based on the results of the research that has been conducted, it can be summarized that students' worksheets to support the ICARE learning model on optical equipment has an average feasibility percentage of 84.2% with extremely expedient category. Then the response from learners has a percentage of 82.5% in excellent category. Therefore, students' worksheets to support the ICARE learning model on optical material is appropriate to be implemented in learning. Based on the results, it is recommended that teachers of physics subjects should develop the students' worksheets to support the ICARE learning model on optical material in other physics materials.

Acknowledgment

Thank you very much to the parties who have helped this research process. So that the results obtained as I have submitted in this journal. Hopefully this journal can be a reference in the development of further research.

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