Developing Students’ Worksheet Based Educational Comic for Eleventh Grade of Vocational High School Agriculture

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Abstract

This article was development students’ worksheet based educational comic for eleventh grade of Vocational High School (SMK) agriculture in Bumi Nabung. The researchers used Research and Development method. The development research model used is 4D which stands for Define, Design, Development and Disseminate. Based on the data analysis of the research obtained an average final score by media experts of 69 that is very worth category, on average by material experts of 44 that is worth category, average by language expert of 36 that is worth category, as well as testing students' worksheets conducted on 5 students obtained an average value of 71.6 that is very worth category. This shows that the developed teaching materials are suitable to be used as teaching materials in teaching and learning activities.

Keywords: Developing, Students’ Worksheets, Educational Comic

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INTRODUCTION

Learning material is a component of the message content in the curriculum that must be delivered to students. This component has various forms of messages, some of which form facts, concepts, principles or rules, procedures, problems, and so on. This component supports as material or material that must be mastered by students in the learning process. As one component of learning, the media cannot escape the discussion of the overall learning system (Suhono, & Sari, 2017; Suhono, 2016; Sari, & Suhono, 2017). The use of media should be a part that must get the attention of learners in each learning activity. But in fact this part is still often overlooked for various reasons. Reasons that often arise include: limited time to prepare for teaching, the difficulty of finding the right media, unavailability of costs (Greenhow & Lewin, 2016; Dron, & Anderson, 2014). This actually does not need to happen if every learner has equipped himself with knowledge and skills in terms of learning media (Xia, 2015; Balakrishnan & Gan, 2016). Indeed, how many types of media can be chosen, developed and utilized in accordance with the conditions, time, costs and desired learning objectives. Each type of media has certain characteristics that we need to understand, so that we can choose the media that fits the needs and conditions in the field.

One of the teaching media that can be used for English learning is educational comics. Educational comics are one type of comic that is currently developing in the community (Laker-Oketta et al., 2018). One of the unique types of comics is that in addition to having story content and comic narratives in general, educational comics also...
have educational and information content related to the subject matter they convey, making them suitable for use in learning media (Kim et al., 2017; Koutníková, 2017; Lazarinis, et al., 2015). Comics were chosen because they are an entertainment media that can accommodate the art, design, science and thoughts of writers with a unique style that belongs to the author, Comics are also chosen because of their high level of difficulty and perseverance (Chute & Jagoda 2014; Widyastuti et al., 2017). Researcher choose educational comic because they are simple teaching materials that are effective in providing education for readers. Educational comic not only present text, but also display images so that they are interesting and not boring when read, educational comic also become a flexible medium for adolescents who are in the situation. Educational comic have a universal visual language so that readers are expected to be able to understand the contents contained therein.

Some previous study who discussed about comics as learning media, for instance the development Comic-Based Students worksheet to Facilitate Student's Problem Solving and Mathematical Disposition (Azizah, 2016), that produce products in the form of comic-based mathematics. It focus only to solve the problem for students' mathematical learning. Other research developing Gravity comic learning media based on Gorontalo culture for V grade Elementary School students (Ntobuo, N. E., Arbie, A., & Amali, 2018). The researcher sees a theme that has never appeared in Indonesian educational comic, namely description, report, procedure and explanation text material with planting cloves process in form English dialogue theme, made in students' worksheet format. In the above trends it can be concluded that students interest in educational comic is increasing day by day, making educational comic as a material that has the potential to become a teaching material with high effectiveness and efficiency. The purpose of this development is to know the developing students' worksheet based educational comics for eleventh grade of SMK agriculture. Research for developing students' worksheet based educational comics for the eleventh grade of SMK agriculture using the Research and Development (R&D) method

METHOD
The researchers used Research and Development method. Four–D model was used that includes fours stage, namely define, design, develop, and disseminate. Questionnaire, Observation, Interview, and Documentation was used in collecting data. Questionnaire is to get information from respondents and to collect data about the feasibility of Educational Comic Worksheet. Observation is to find out the initial data based on information (data) that is in accordance with the observations made by researcher in SMK Agriculture Alam Nusantara Bumi Nabung. The researchers used Structural interviews. This interview sheet is to strengthen the preliminary data that has been obtained from observations about the use of teaching materials. Interviews were conducted with English teacher at SMK Agriculture Alam Nusantara Bumi Nabung. To further strengthen the results of this study, researchers used documentation in the form of photographs of school conditions, student data, school facilities and infrastructure and the use of teaching materials when students conducted the learning process. In analyzing the data was collected can be grouped into two namely: quantitative data in the form of numbers and qualitative data in the form of words. The instrument used in this study was non-test instruments in the form of a questionnaire using a Likert scale. Expert validation questionnaire related to media, material and language and student responses. Developing Students' Worksheet Based Educational Comic has 5 answer choices according to the question items.
RESULT AND DISCUSSION

The results of research and development that have been carried out at the SMK Agriculture Bumi Nabung. Developing Students’ Worksheet Based Educational Comic has been implemented with a 4-D development model consisting of 4 phases, namely Define, Design, Development and Disseminate. Explanation of the stages of development is explained further as follows:

Define Phase

This research was conducted on XI grade students of SMK Agriculture Bumi Nabung in Academic Year 2019/2020, with description, report, procedure and explanation text material. Classes used as research subjects are class XI which consists of 5 students. The steps used in this stage are as follows:

a. Initial-end analysis

At this stage the analysis is to identify the problems faced by students and teachers in learning English. Based on observation and interview made regarding conditions related to English learning in schools. The following information based observation: Students at SMK Agriculture Bumi Nabung interest in English is very less, because English material is difficult to understand. In the school have not Student worksheet based educational and a combination of English material with a clove planting planting system. While the following information based interview: Siti Amanah as a library staff member said that "Planting practices that have been implemented include growing melons, watermelons, bitter melon, spinach, kale and onions. At school also has never practiced growing cloves (Interview, Siti Amanah. Library Staff at SMK Agriculture Bumi Nabung, February 10th 2020). Khowajah Lailul Fauziah, S.Pd as an English Teacher said that "Student interest in English is very less, there have never been Students’ Worksheet Based Education Comics, and there has never been a combination of English material February 10, 2020). Ahmad Irvan Saputra as a XII grade student said that "The learning they have gained so far, especially English material is difficult to understand, explanations that are so fast are hard to accept and even make students slow to understand."62 On the basis of the above problems that At school also has never practiced growing cloves, books used by participants students are also limited and English material is difficult to understand. So researcher will be developing Students’ Worksheet Based Education Comic, English for SMK Agriculture.

Analysis of students found a problem that is about students who are less enthusiastic in learning English. From the observation process found: Rohati, as a grade XII student, said that the reason for not being interested in English subject was that "It only uses direct learning, which makes students bored and many vocabularies are difficult to understand." (Interview with Rohati (XII grade Student SMK Agriculture Bumi Nabung, March 1, 2020). On the basis of the above problems, the Students’ Worksheet Based Education Education will be developed as a study that makes it more active, fun and easy to remember

Design Phase

This phase is researcher make prototypes that have not development and validation phase yet carried out which include cover, indicators, educational comic story, exercises and assessment

a. Cover

The cover is a green background cover. The face of the father who looks young and does not wear boots. Women who wear hats, and there is no name for the comic composer.
Figure 1
Cover of Students’ Worksheet Based Educational Comic

Figure 2
Educational Comic Story of Students’ Worksheet Based Educational Comic

b. Indicator and content educational comic story
The educational comic story, there are lots of panels on each sheet, it doesn't look like the image looks interesting. The material therein is only procedure text.
Development Phase

This phase is where Students' Worksheets that have been compiled are then converted into a learning program. There are several things done in the product design stage of the Students' Worksheet Based Education Comic, English for SMK Agriculture XI Grade. The steps in designing the Students' Worksheet include: adjusting material with core competencies, basic competencies, and indicators in curriculum, gathering and making comics that can be linked between English material and the clove Planting-system. Students' Worksheet uses Corel DRAW X7 and Adobe Photoshop CS6 applications, A4 paper sizes, and Aparajita fonts, Comic Sans Ms., Cooper Black, Gothic Bold Copperplate, Harlow Solid Italic and Rosewood Std.

a. Cover Students' Worksheet

Figure 4
Cover Design of Students' Worksheet Based Educational Comic before and after Revise
The cover page is designed which consists of the title, picture, name of the composer and guide. The images contained in the cover are adapted to text and agricultural type material. The design of the cover of the Students' Worksheet is expected to be able to attract students' interest in learning the Students' Worksheet. In the first revision, Isnaini Nur Azizah, M.Pd said that "The shape of his lips is covered, try to make it more fatherly, because the ones whose lips are covered are pretty." (Interview with Isnaini Nur Azizah (Lecturer as Media Expert, Institute for Islamic Studies Ma'arif NU Metto Lampung, March 9th 2020). In the second revision, Isnaini Nur Azizah, M.Pd said that "In the cover section, just add the composer and advisors name. Here is the cover design of Students' Worksheet Based Education Comic, English for SMK Agriculture XI Grade.

b. Preface & Table Content

Preface contains a description of educational innovation in Students' Worksheet Based Education Comic, English for SMK Agriculture XI Grade. Isnaini Nur Azizah, M.Pd said that "In the Students' Worksheet there should be an introduction. The preview page for the Students' Worksheet can be seen in the following image.

Table of contents is designed as a medium to facilitate the reader in finding the desired material. The table of contents is designed which consists of the title of the material and the page number. In the revision, Isnaini Nur Azizah, M.Pd said that "The background must be light colored, if the writing is dark, so that the letters look clear." The table of contents for the Students' Worksheet page can be seen in the following image.

C. Instructions for Using Students' Worksheets

Instructions for using Students' Worksheets are intended so that the learning process can run smoothly. In the revision, Isnaini Nur Azizah, M.Pd said that "Add time to the process of working on Students' Worksheets." A display of the instructions for using the Students' Worksheet can be seen in the following image.

Isnaini Nur Azizah, M.Pd said that "In Students' Worksheet Based Educational Comics there must be an introduction to characters." The introduction of the Students' Worksheet page can be seen in the following image.

D. Educational Comic Story

The design in delivering educational comic stories to the Students' Worksheet is obtained from every activity contained in the Students' Worksheet. It is expected that the design of commands and questions that have been provided can help students to find concepts of educational comic stories that are conveyed, so students can observe the contents of comic stories that are linked between text types and the clove planting system. In the revision stage of Isnaini Nur Azizah, M.Pd said that "The picture must be interesting and clear, if only the writing is highlighted, then it is no different from the general book, because this is comic, so the picture must be dominant but not leave the material. The educational comic Stories Students' page view of the Worksheet can be seen in the following image.
E. Exercises

Figure 5
Exercises of Students' Worksheet Based Educational Comic

At the end of the Students' Worksheet section, it is planned to arrange question exercises containing questions that can determine the extent to which the contents of educational comic stories that students have understood. Isnaini Nur Azizah, M.Pd said that "The form of questions must be in accordance with the material as well as components of the learning method." The practice page for the Students' Worksheet can be seen in the following picture.

F. Assessment

Figure 6
Assessment of Students' Worksheet Based Educational Comic
Isnaini Nur Azizah, M.Pd said that "Many learning methods can be used, look for the right one that you will need." The author has designed in determining the value of the question exercise on the Students' Worksheet based on the Problem Based Learning (PBL) component. Students' Worksheet Based Education Comic conducted by experts and students using a questionnaire. The questionnaire consisted of five answer choices namely, Very Worth, Worth, Worth Enough, Inadequate, Very Inadequate. The assessment instrument by the media expert consisted of 16 points of assessment which included several assessment aspects, namely: visual, text, ergonomic and media quality aspects. The assessment instrument by the material expert consisted of 12 grading points which included several assessment aspects, namely: conformity with teaching objectives, support for contents of the material, use of media and conformity with students. The instrument of assessment by language expert consists of 9 grading items which include assessment of language ability aspects. Student response questionnaire to the eligibility of Students' Worksheet Based Education Comic consists of 16 points of assessment. After the instrument is finished, the instrument is then validated by experts. The instrument validation was carried out by Isnaini Nur Azizah, M.Pd, Suhono M.Pd and Irhamudin, M.M.

Design validation
At this stage, the researcher conducted validation of the Students' Worksheet Based Education Comic at the Institute for Islamic Studies Ma'arif (IAIM) NU Metro Lampung is Isnaini Nur Azizah, M.Pd, 2) Material expert from lecturer at the Institute for Islamic Studies Ma'arif (IAIM) NU Metro Lampung is Suhono M.Pd and 3) language expert from lecturer at the Institute for Islamic Studies Ma’arif (IAIM) NU Metro Lampung is Irhamudin, MM At this stage the aim is to obtain input, suggestions, opinions and evaluation of the Students' Worksheets that are developed. In order to obtain valid Students' Worksheets or worth testing. After the product has passed the validation stage by the media, the material and language expert has been completed, then the product is tested to determine students' responses to the product being developed. Product trials were conducted at SMK Agriculture XI Grade with a total of 5 students. In the Students' Worksheet trial, students are divided into 1 group then the researcher distributes the products developed in the form of Students' Worksheets. Explain the contents, while students pay attention, understand the instructions

Disseminate Phase
Learning tools obtained in the final stages of development are then distributed or disseminated to teachers English XI grade at SMK Agriculture Bumi Nabung.

Based on the description of the results of the research described earlier, this research development has two objectives. The purpose of this development is to know the developing students' worksheet based educational comics for eleventh grade of SMK agriculture. Research for developing students' worksheet based educational comics for the eleventh grade of SMK agriculture using the Research and Development (R&D) method. In this development, to produce the Students' Worksheet product that was developed, the researchers used a 4-D development model consisting of 4 stages namely Define, Design, Develop and Disseminate.

The results of the validation are carried out by the media, material and language experts. The results of the assessment on the expert media reached an average of 69 meeting the very worth criteria. The results of the assessment on the expert material reached an average of 44 meeting the worth criteria. And the results of the assessment on the language expert reached an average of 36 meeting the worth criteria. The research conducted of SMK Agriculture Bumi Nabung XI grade with a total of 5 students. In the questionnaire test the responses of students' Worksheet Based Educational Comics obtained an average score of 71,6 meeting the very worth criteria.

Based on the statement above, it can be concluded that the students' worksheet based on educational comics for eleventh grade of vocational agriculture that has been
developed meets very decent criteria. The differences in the results of research conducted by researchers at SMK Agriculture grade XI with research conducted by Sariyatul Ilyana and Candra research's titled "Developing Educational Comics as Financial Literacy Learning Media for Elementary Students", as well as educational comics, only they are as financial literacy learning media while the research is as students' worksheets (Ilyana, 2016). Isnaini Nur Azizah research's titled "The Development of Comic-Based Student Worksheets to Facilitate Student's Problem Solving and Mathematical Disposition" as well as students' worksheets based on educational comics, only Isnaini with Mathematical material while researchers use English material (Isnaini, 2016). Nikmah et al., (2019) research entitled, "Development of Android Comic Media for the Chapter of Newton's Gravity to Map Learning Motivation of Students", Same as educational comics, it's just that Taufiq's development Android comic media to map learning motivation of students while researchers developing students' worksheets. And Murtikusuma research, as well as Problem Based Learning Models, only Randi coffee and cocoa theme while clove theme researchers (Murtikusuma, 2016). It was clearly that Developed media, for instance comics has fulfilled the quality of a good media, which includes valid, practical, and effective (Daulay 2018; Ntobuo et al., 2018). It a tool that can be used to convey the message to the students for the purpose of learning can be achieved. Each learning medium used has unique characteristics (Widodo, 2018; Aisyah, 2017). Thus, the learning media in the form of comics on the subject can be used in the learning process to facilitate the students in understanding the concept of historical material that tends to abstract (Hidayah, 2019). Referring to those studies, gravity comic is feasible in science learning inasmuch as it could increase students' interest, motivation, participation, and learning outcomes.

CONCLUSION
The results of the development of students' worksheets based on educational comics at SMK Agriculture Bumi Nabung XI grade is appropriate to use. This is based on the acquisition of the average final score of the assessment results of students 'worksheet based educational comics by the media expert of 69, the acquisition of the average final score of the results of the assessment of students' worksheet based educational comic by the material expert of 44, the acquisition of the average final score the results of the students' worksheet based educational comic assessment by language experts of 36, from all validators and obtained valid or worth categories. And from the results of the questionnaire responses of students to students' worksheet based educational comics at the SMK Agriculture Bumi Nabung XI grade obtained a very worth category with an average score of 71.6.

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AUTHORS CONTRIBUTION STATEMENTS
The author had participated in the research and approved the final version of the manuscript.
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