

Comic Book as a Source of Learning of *Fungi* Material for Senior High School

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Abstract—This study aimed to develop comic book as a source of learning on fungi material for senior high school which is fulfilled the validity criteria and effective as a learning resource. The research was conducted using research and development model with 4D design consisted of four steps included define, design, develop, and disseminate. The subjects of this research are media experts, subject matter experts, and language experts as validator, teachers as practical experts, and students of senior high school Muara Bungo for exploring students' responses on the comic book. The data were collected using instrument validity sheet, list of interview and questionnaire. The data were analyzed using a descriptive qualitative approach. The results of this study indicated that the comic book has a quality that is quite valid and feasible to be used as a learning resource and effective according to the expert validation that reached the category quite valid, valid, and adequate for aspect language, subject matter, and media, respectively. Practical analysis showed that comic book feasible to be used as an effective material for fungi and found can encourage students' activity during the teaching and learning process. The effectivity of the comic book also supported by the positive responses from students on the implementation of a comic book as learning resource for fungi learning. It can be concluded that the developed comic book was valid, practical, and effective to facilitate students' motivation.

Keywords—comic book; learning resource; fungi

I. INTRODUCTION

One of the problems facing the world of education is the weakness of the learning process. In the learning process, students are less encouraged to develop thinking skills. In addition, the availability of facilities and infrastructure is sometimes not sufficient to carry out the learning process independently or cannot be used optimally as a learning resource. In the learning process students often feel difficulties because it is caused by several factors so that the learning process does not run well including in terms of learning resources in the form of textbooks, teachers, students, availability of facilities and environments [1].

Availability of learning resources facilities can assist to create a positive academic atmosphere to encourage students to be actively involved in the learning process. Less supportive learning resources will promote passive teaching and learning processes. To overcome this situation, teacher should make an effort to do an innovation in creating variative and proper media to enhance students' participation during the class.

Many alternative options that can be utilized teachers to use the media that the variation in the learning process in the classroom.

If in the learning process, there is a low level of students' understanding of learning material marked the presence of less active hood. Students are required to have an active attitude that can be started with a lot of reading and will later have an impact on student learning outcomes. While the subject matter as a source is available but students' interest in reading is still low and it will have an impact on their learning outcomes. This is because textbooks that are widely used or owned by students are verbalistic books that make students become bored because the sentence in the book is presented rigidly and less communicatively. In addition, the appearance of textbooks that is less attractive thus decreasing students' interest in reading [2].

Students who have different characters from one another need to know the needs of each individual. Situated learning makes knowledge more meaningful to students and provides them with opportunities to explore knowledge. Learning has its own limits in the method of practices and in the construction of a learning environment. Without adequate media it is very difficult for teachers to carry out the learning process. The learning process of knowledge is more meaningful to students and provides them with opportunities to explore knowledge.

Based on the results of the grand tour, researchers obtained data about the process of teaching achievement seen from students' reading interest is lacking due to the presentation of textbooks although there are pictures but the images presented are not attractive, the form of writing used in books looks boring, vocabulary lists are in the back of the book so Book users are not effective, the explanation of the sentence patterns used is not clear, there is no meaning in each sentence of the foreign language listed in the book, the language used is difficult to understand and formal. This will certainly have an impact on the decline in students' reading interest so that the use of books is needed that can increase students' reading interest, one of which is a comic book that can be used as a learning resource that has interesting illustrations and drawings [3].

Colored illustrations, story lines with realistic characterization may attract all children of various ages. The development of comics lately is developing well. Based on its

nature, learning comic media has a simple nature, easily understood by student. Learning with comic media is expected to increase students' interest in reading so that students better understand complicated teaching material [4].

Learning with comic is expected to be overcome the limitations of the learning process and can be used as a source of learning and a substitute teacher. The importance of comic development is one of the efforts to improve student learning achievement, especially in fungus material. This is done considering comics are one form of teaching material that is compiled in an interesting way. Comics can be defined as cartoon form that express character and apply a story that is closely relates to images and designed to provide entertainment to readers. In the beginning, comics were created not for learning activities, but for mere interests [5].

Comics' status as a lowly medium for the masses and the fact that they appeal to children have perhaps been the main reasons why they were largely and somewhat unfairly ignored by academia, something most critical appraisals of comics are quick to state. Here I will focus mainly on the subset of studies on comics: those that have looked at connections between science and comics. I will briefly review such studies and their conclusions [4]. I will then give an overview of the genre of comic books that aim to communicate science: the science comics. Comics would be an interesting learning tool for students because they have a series of coherent story plot, and require only few words to describe the scenarios. In the research applying comics, comics also can stimulate students' learning motivation and interest. Comic books employ a complex interplay of text and images that gives them the potential to effectively convey concepts and motivate student engagement. This makes comics an appealing option for educators trying to improve science literacy about pressing societal issues involving science and technology. Comic may play a role in engaging and shaping student attitudes in a positive way [6].

It is hoped that the excellence of comic excellence obtained from the design results is, comics add to the vocabulary for those who read it, making it easier for students to express abstract things or formulations [7], can develop children's reading interest and develop another field of study, the whole comic story line to on one thing that is good or another study. With teacher comics, it can help to arouse interest in learning students who have been bored with textbooks and worksheets that are relatively thick and tend to be more serious without being interspersed with humor that can relax the student's brain. Comic media are included in graphic media. Graphic media itself is a visual presentation, which uses dots, lines, pictures, writings, or other visual symbols in order to summarize, describe, and summarize an idea, data or event. Therefore, the comics have been used to motivate children to read [4]. The comic book product specifications produced for the fungus material with the power of this comic book images become stories that can help produce coherence and context for information. Pedagogical tools that involve student, motivate them to read, help them remember content, and make the whole process enjoyable will be very useful during the learning process for fungi teaching materials. In this paper, we report

the results from a "Comic Book as a Source of Learning on fungi Material for Senior High School".

II. METHODS

This research was conducted using research and development (R & D) method. Research and development is a process or steps to develop new products, or to improve the existing products. This research was conducted at senior High School Muara Bango. The study was developed using 4D (Define-Design-Develop-Disseminate) model [8]. The data was collected using non-test instruments included instrument validity sheet, list of interview, and questionnaire. The research subjects are expert's validator for justification the developed comic book from aspect of media, subject matter, and language, Practical analysator represents by teachers, and students for media feasibility measurement. The obtained data then analyzed by descriptive qualitative approach to find out the validity, practical aspect and effectivity of the comic book in facilitating students participation during the learning process.

III. RESULT AND DISCUSSION

The first step of the comic book development is performance and need analysis for defining the comic book for fungi material. Performance analysis was obtained through interviewing to the teachers and found that the majority of the teaching process are using textbook as learning media which are less interested in for students for reading it. It was found that there are too many textbooks available for fungus material so that they do not motivate students to read and understand teaching material. In addition, the need analysis which are conducted for finding out students preferences on the learning media found that adolescent age students prefer to read illustrated books in the form of comics that have humorous humor. Task analysis for comic design found that some task will be given to the fungi material for indicators of fungi classification based on the morphological characteristics that will be observed by students. The elaborate the content for the comic, the concepts analysis was carried out to decide the essential concepts will be delivered in the comic book. The concepts are the characteristics group of fungi, fungi morphology, how fungi obtaining nutrition, and fungi reproduction.

The application of comics as a learning medium basically aims to increase students' learning motivation and reading interest, and create a pleasant learning atmosphere. Comics allow the teacher to approach visually to students through illustrations of the images presented in them. Abstract materials and concepts in Biology lessons can be clarified with interesting picture illustrations and stories that are easily understood by students, besides Biology Comics are also very effective to be used as learning media, because illustrations of images displayed are in accordance with the subject matter and related to real life student.

The next steps are design the product. This step will decide what kind of product specifications that are desired by students so that they are interested in reading books [9]. Designing comic books as interesting as possible and in accordance with

the characteristics of students. This step decided that the comic book products are designed by sketching images using hands (Figure 1).



Fig. 1. Sketch results of images using hand.

Comics include visual images or illustrations. Sones (states that image quality in comics can improve the quality of learning. Sones conducted an experiment by dividing four hundred students into two groups. Each group is balanced in terms of ability. The two class groups each took turns receiving learning using comics and textbooks, and the results showed that students' grades were higher when receiving learning using comics rather than using textbooks only. Based on the research results, it can be concluded that the illustrations in the comics have a very large influence on the reader, therefore Biology Comics as a learning medium has been calculated for making illustrations, so that in addition to increasing students' reading interest, they are also able to help students in understand the Biology materials included in it. The illustrations in Biology Comics cover several aspects, including the following.

The characters involved in the comic storyline play a very important role, through these figures teachers and developers can convey messages or information to the reader. Comics as learning media are the delivery of messages, ideas and ideas of teachers to students. The material and information that the teacher wants to convey can be easily channeled through the pictures in the comics. The teacher's obligation here is to be careful in including illustrations relating to fungal material [5].

Other aspects are making the coloring design for attracting students' interest in reading (Figure 2). This step also determined that the sketch will be printed on the high quality art paper for increasing media attraction to the reader (here are students). Cartoon comics on the market are generally colorless. The quality of the paper is also not good compared to other types of reading books such as novels or encyclopedias, but these two things do not reduce the interest of the reader in comics. This is in accordance with Hurlock's statement that the characteristics of entertaining and enjoyable reading books include: presented with colorful images, simple language, and interesting stories [5,10].

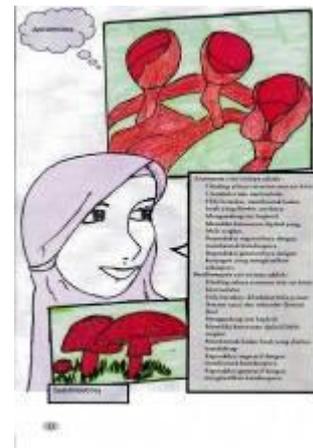


Fig. 2. Sketch results picture after scan.

The next steps are developing. The development phase is carried out after the drawing sketch design in the comic book is finished then scanned using a computer, then the next step is given to the media, material and language validators [11]. This step is validation the comic book by the experts. The validation covered three aspects included media, material (content/subject matter), and language. The result of the validation test by the experts were shown in Table 1.

TABLE I. RESULTS VALIDATION OF THE DEVELOPED COMIC BOOK

No	Aspect	Average score (%)	Category
1.	Media	59,08 %	Adequate
2.	Material	77,50 %	Valid
3.	Language	91,66 %	Quite valid

The results of the expert's judgements showed that the comic book is categorized adequate valid, valid and quite valid from aspect of media, subject matter, and language, respectively, indicating that developed learning media can be used in learning process. Practical analysis was carried out by judging the comic book as interesting material for fungi material to the teachers and revealed that the developed comic book feasible to be used for teaching fungi topic to the students.

The last step is disseminating for measuring the effectivity of the developed comic book as an interesting learning resource for students. The limited trial of the product showed an almost all students (78.2%) gave a positive response to the aiding comic book as attractive fungi material. This results support the above finding that the developed comic book is feasible and accessible for students. Documentation for student's activity during learning process found that the use of the comic book has encouraged students to be more active during the learning process.

Biology Comics can be used as an effective learning media because of its several advantages, among others, Biology Comics can create a pleasant learning atmosphere, when students feel like reading stories in comics, students unconsciously have learned Biological concepts and will also like them. This is because language in comics is easy to understand so students are also easier to learn. The materials

included in the storyline are made as simple as possible and use non-formal perceptual language [5,12-15].

The use of comics actually also reduces student learning experiences directly. This is very closely related to the principles of Biology learning that prioritize direct field observation or realis (observation of original objects), based on this, the use of comics as a learning media for Biology also needs to be combined with practical activities and direct observation so that students can truly understand the Biology material provided [13,14-18].

IV. CONCLUSION

Based on the results of the study, it can be concluded that learning resources were designed in the form of biology comics on fungi material after several revisions, the expert validator team stated that comics were suitable for use, and the comics that had been tested on students had good responses by students, biology teachers also stated that comics that were designed practically and effectively were used in the learning process.

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