



Development of Comic Strip Learning Media on Human Reproductive System Material in Class XI MA Madani Alauddin Pao-Pao

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Article Information	ABSTRAK
Submitted: 03 – 08 – 2023 Accepted: 08 – 07 – 2024 Published: 28 – 03 – 2024	<p>Penelitian ini bertujuan mengetahui karakteristik, tingkat kevalidan, tingkat kepraktisan, dan tingkat keefektifan media pembelajaran komik strip pada materi sistem reproduksi manusia kelas XI di MA Madani Alauddin Pao-pao. Jenis penelitian ini adalah penelitian dan pengembangan (research and development) dengan mengacu pada model ADDIE yang memiliki lima tahapan yaitu analyze (analisis), design (perancangan), develop (pengembangan), implement (pelaksanaan), evaluate (evaluasi). Subjek penelitian yaitu peserta didik kelas XI MIA 1 di MA Madani Alauddin Pao-pao dengan jumlah 33 orang. Instrumen yang digunakan pada penelitian ini adalah lembar validasi, angket dan tes hasil belajar. Hasil penelitian ini menunjukkan bahwa komik strip yang dikembangkan memiliki tingkat kevalidan dengan nilai rata-rata 3,67 dengan kategori sangat valid. Kemudian pada tingkat kepraktisan produk berdasarkan hasil angket respon pendidik dan peserta didik diperoleh nilai rata-rata 88% dengan kategori sangat praktis. Selanjutnya pada uji keefektifan, komik strip yang dikembangkan termasuk kategori sangat efektif karena persentase ketuntasan peserta didik adalah 87%. Sehingga media pembelajaran komik strip layak digunakan karena memenuhi kriteria valid, praktis, dan efektif.</p> <p>Kata kunci: Komik Strip; Media Pembelajaran; Pendidikan; Pengembangan</p>
Publisher	ABSTRACT
Program Studi Pendidikan Biologi, Fakultas Sains dan Teknologi, UIN Walisongo Semarang	<p><i>This study aims to determine characteristics, level of validity, level of practicality, and level of effectiveness of comic strip learning media on human reproductive system material in class XI at MA Madani Alauddin Pao-pao. This type of research is research and development by referring to the ADDIE model which has five stages, namely analyze, design, develop, implement, evaluate. The research subjects were students of class XI MIA 1 at MA Madani Alauddin Pao-pao with a total of 33 people. The instruments used in this study were validation sheets, questionnaires and learning outcomes tests. The results of this study indicate that the comic strip developed has a level of validity with an average value of 3.67 with a very valid category. Then at the level of product practicality based on the results of the response questionnaire of educators and students obtained an average value of 88% with a very practical category. Furthermore, in the effectiveness test, the comic strips developed were included in the very effective category because the percentage of students' completeness was very high.</i></p> <p>Keywords: Comic Strip; Development; Education; Learning Media</p>

INTRODUCTION

Education is the transformation of insights, culture and values that develop in a generation in order to be transformed back to the next generation. Education does not only discuss the transformation of insights, but has reached the realm of cultural transformation and values that develop in people's lives (Sanusi & Ahmad 2018). Education includes three important elements, namely parents, educators and the government where the three elements must be directly involved (Nurkholis, 2013).

The learning process in the classroom is actually an educational interaction involving educators and students, each as a teacher and the taught party in order to achieve educational goals (Hanafi et al., 2019). Learning can take place well if you use good learning methods as a learning strategy. The use of learning media as one of the strategies can increase students' interest and motivation to learn so that it is easier to understand the material (Nurrita, 2018).

The use of learning media is needed in a learning process, because the delivery of material by educators to students is collected in a teaching material. Package books or modules are the most dominant teaching materials used. These teaching materials have characteristics such as a lot of writing or long descriptions of material that cause less motivation for students to learn (Anesia, Anggoro & Indra, 2018). Things like this will make students lack the ability to remember learning material especially in biology subjects that have a lot of material and requires memory. Based on research conducted by Ami, Endang & Raharjo (2012) stated that students tend to like interesting reading. Pictures and colors can increase reading interest because they can help readers imagine. Imagination can help a person improve their memory performance.

Based on observations, the results show that during biology learning takes place, the use of media in learning is still not optimal, the dominant media used is a textbook and sometimes uses an LCD projector to display PowerPoint. The package books used are only distributed during the learning process because there are still limited books available. The books used make students less interested in reading, especially students do not have companion books or handbooks for independent learning.

Based on these conditions, one of the efforts that can be made is to develop learning media that are expected to be able to help students to easily understand and make it easier to remember biology lessons, especially the material of the human reproductive system. The learning media developed are comic strips. Comic strips act as media supplements, this is done in order to help students more easily understand the material as a whole. In addition, the time used will be more effective and not wasted just to record the subject matter, and can increase the active role of students in learning, and can be used as an independent handbook.

Comic strips have the advantage of being easy to understand, simple images plus words in everyday language make comic strips can be read by everyone. Through comic strips, an educator can communicate visually, because comic strips

have the potential to be a more informative tool so that the material can be delivered more easily and interestingly. This benefit is in line with the development objective, which is to increase reading interest. In addition, comic strips as an educational learning media, have a simple, clear, easy and personal nature (Rohani, 2014).

METHOD

This research is research and development or R&D using the ADDIE model which has five stages, namely (1) analyze, (2) design, (3) develop, (4) implement, (5) evaluate (Branch, 2009). This ADDIE model has a simpler and more systematic procedure, and also provides an opportunity for researchers to evaluate each stage to revise the developed product. The research location is SMAN at MA Madani Alauddin Pao-pao. The subjects of this study were students of class XI MIA 1 with a total of 33 students.

There are five types of research instruments used, namely (1) media characteristics sheet used to determine the characteristics of the product developed and can be used as a reference to distinguish the product developed from other products, (2) validation sheet to test the validity level of the media, (3) response questionnaire used to test the practicality level of the media, (4) test questions used to test the effectiveness level of the media, and (5) observation sheet used to assess student learning activities.

The criteria for the level of validity were tested by expert validators based on the criteria shown in table 1.

Table 1. Criteria for Validity Level

Value	Criteria
$V \leq 3,5$	Completely valid
$2,9 \leq V < 3,4$	Valid
$2,3 \leq V < 2,8$	Moderately valid
$1,7 \leq V < 2,2$	Less valid
$V \leq 1,6$	Not valid

The criteria for the level of practicality based on the average percentage of response results can be shown in table 2.

Table 2. Criteria for Practicality Level

Practicality Category	Criteria
81% - 100%	Completely practical
61% - 80%	Practical
41% - 60%	Moderately practical
21% - 40%	Less practical
0 - 20%	Extremely impractical

Learning media is said to be effective if students get a score equal to or greater than the KKM value (value \geq KKM) after using the media. Learning is declared classically effective if around 80% of students get a complete score (Widyoko, 2014). The effectiveness criteria are shown in table 3.

Table 3. Criteria for Effectiveness Level

Percentage of Completion	Classification
> 80	Excellent
> 60 – 80	Good
> 40 – 60	Enough
> 20 – 40	Less good
20 ≤	Not good

RESULTS AND DISCUSSION

Characteristics of Comic Strip Learning Media

Comic strips are a series of images that tell a short story wrapped in humor, tend to be short, directly lead to the core of the problem and do not require a long narrative just to identify the character's background (Triani, 2021). Some of the components that make up comic strips include (Amalia, 2021).

- a. Panel, a box containing illustrations and text that form the flow of a story



Figure 1. Comic Strip Learning Media Panel

- b. Gutter, which is the distance between panels in a comic.



Figure 2. Distance Between Panels of Comic Strip Learning Media

- c. Word balloons, which are substantial conversations directly related to comic characters.



Figure 3. Word Balloons of Comic Strip Learning Media

- d. Narration, is information conveyed by the author to assist the reader in understanding the scene or storyline conveyed in the form of short sentences.



Figure 4. Narrative Example of Comic Strip Learning Media

The content of the comic strip learning media material gets an average percentage of 100% with a very good category. The suitability of the material content in the media refers to the 2013 curriculum so that it will be in line with K.D 3.12 analyze the relationship between the structure of the tissues that make up the reproductive organs and their functions in the human reproductive system. The material is presented interestingly due to several factors, namely, comic strip learning media contains humor stories that can be done through the use of sentences, language, images, anecdotes, short stories, cartoons, caricatures, or jokes that can

stimulate the creation of a sense of cheerfulness, relaxation and fun in the learning process. Humor or jokes can reduce anxiety levels, a person's sense of stress, improve mental health, and are related to a mature personality (Marwan, 2013).

The size of the comic learning media gets a percentage value of 100% with a very good category. This is based on the basic size of comic strip learning media referring to the canvas size on Webtoon, which is 800 pixels wide and 1280 pixels long. The canvas size tends to extend downward by adjusting the number of panels used. This length is obtained from the sum of the length of 1280 pixels multiplied by 2, 3, 4, 5 and so on until the ideal length is obtained.

The language of comic strip learning media gets a percentage value of 100% with a very good category. This means that the language used is easy to understand and is in accordance with the use of Ejaan Yang Disempurnakan (EYD), but this comic strip media needs better vocabulary selection so that students are confused and there is no misinterpretation of the material presented. Good and correct Indonesian grammar is in accordance with the applicable provisions using EYD (Rusliana, 2022).

The use of comic strip learning media received a percentage of 100% with a very good category. This is because the comic strip learning media uses the Webtoon platform, so it can be accessed online using smartphones, PCs, tablets, and other mobile devices, anywhere and anytime. Webtoon is presented in one long page that only needs to scroll up to see the content of the material or switch between episodes.

Level of Validity of Comic Strip Learning Media

The validity of comic strip learning media shows an average value of 3.7 in the very valid category shown in table 4.

Table 4. Assesment from Validator I and II

Assessment Aspect	Assessment Results	Category
Comic display	3,38	Valid
Content	4	Completely Valid
Communicative language	3	Valid
Ease of using the media	4	Completely Valid
Media characteristics	4	Completely Valid
Average	3,7	Completely Valid

The first aspect assessed was the comic display aspect which obtained an average score of 3.38 with a valid category. Indicating that the combination of illustrations, colors and use of font types, as well as high image resolution can make students understand the material well. The choice of font type plays an important role to make it easier for readers. The selection of font types plays an important role to facilitate readers. The type of font used in comic strip learning media uses two types of fonts, namely Bongkar Regular and Mabook Regular by considering the appearance that matches the illustrations used, as well as the suitability of the script in the story. The use of these two types of fonts because they have a san serif shape

with the character axis of the letter “O” vertically upright and low stroke contrast but are able to be juxtaposed with illustrations with various types of colors (Sihombing, 2013), besides that it also gives a simple, straightforward impression, seems more relaxed / not rigid, has a clear level of readability (Amalia & Amanda, 2018). Furthermore, the font size is fairly important, in comic strip learning media using font sizes 12, 13, and 14 the selection of font sizes is due to adjusting to the size of the word balloons contained in the comic strip learning media.

The right color can also make learning more comfortable, able to arouse and stimulate the thoughts and feelings of students' attention and willingness (Purnama, 2010). The use of color on the Webtoon canvas uses white because it is clean and easy to match with other colors. Furthermore, there are several uses of other colors in objects such as color, the selection of orange is due to its ability to stimulate and increase the flow of oxygen to the brain, thus producing an excited effect and increasing brain activity. Furthermore, the use of red is almost similar to orange which is assertive, imaginative, bold and vibrant. The use of purple is because it has a happy, comfortable nature, and characterizes people who have deep thoughts. The use of the last color on comic strip learning media is gray because it chooses careful personality traits, easily blends with others, and is usually owned by neutral and impartial people (rustan, 2019). The combination of colors on the Webtoon canvas and the colors in the illustrations displayed are designed comfortably and easy to read so that they can produce an attractive appearance and influence students' reading interest (Mumpuni & Rizki, 2019). Therefore, the color selection is expected to be able to make students more enthusiastic and motivated when learning using comic strip learning media.

The second assessment aspect is the aspect of the content of the material gets an average score of 4 with a very valid category. The suitability of the content of the material on the media refers to the 2013 curriculum so that it will be in line with K.D and K.I. the order of the material is also in accordance with the learning topics in each episode presented. The comic strip learning media developed presents the content of the material in accordance with the needs of students, namely the need for learning media that can be accessed independently. The third assessment aspect is communicative language that gets an average score of 3 with a valid category. This means that the language used is easy to understand and is in accordance with the use of EYD, but this comic strip media needs better vocabulary selection so that students are confused and there is no misinterpretation of the material presented. Good and correct Indonesian grammar is in accordance with the applicable provisions, namely by using EYD (Rusliana, 2022).

Learning media can be said to be valid and feasible if the research results are at least in the good category (Budiana, 2021). The developed media is said to be valid if the resulting validity level is valid. If the level of validity of the learning developed is lower than valid, it is necessary to make revisions until it obtains a valid level of validation (Dameria, 2019). Based on the assessment of the two validators, the comic strip learning media developed reached the eligibility standard, namely an

average value of 3.59 with a very valid category. based on the criteria used in determining the validity of learning media has a validity with an average of $2.2 < V \leq 2.8$ with a fairly valid category (Hartanto, 2019).

Practicality level of comic strip learning media

Based on the results of the response to the use of comic strip learning media, students obtained an average value of 85%, while in the educator response questionnaire obtained an average value of 90%. So that the overall average is 87.5% with a very practical category. The data can be seen in table 5.

Table 5. Results of User Response of comic strip learning media

No.	Type of Assessment	Average	Assessment Criteria
1	Student's response	85%	Completely practical
2	Teacher's response	90%	Completely practical
Average		87,5%	Completely practical

Indicators of the practicality of comic strip learning media are reviewed in terms of appearance, namely the combination of attractive colors and images that can attract the attention of students and make the learning atmosphere of students not boring and able to understand and simplify the material well. The material side of the comic strip learning media looks at the suitability of the content of the material that refers to the 2013 Curriculum so that it will be in line with K.D 3.12 Analyze the relationship between the structure of the tissues that make up the reproductive organs and their functions in the human reproductive system.

The achievement of the level of practicality of comic strip learning media that has been developed based on several aspects of practicality, then this comic strip learning media can be used in the learning process. The comic strip developed has an attractive appearance, can provide convenience in its use, the language used is communicative so that it is easy for students to understand, and the material presented is in accordance with the concept and easy to understand with techniques to make it easier to remember the material. In accordance with Van den Akker's opinion which states that the practicality of development products refers to users liking and can be easily used under normal conditions (Haviz, 2013).

Effectiveness level of comic strip learning media

The level of effectiveness of comic strip learning media can be seen based on student learning outcomes tests. The learning outcomes test is used to measure the level of understanding of students on plantae material, especially on the sub-material of the human reproductive system. The following is the percentage of the student learning outcomes test described in table 6.

Table 6. Percentage Level of Effectiveness of comic strip learning media

Score	Student Completion	Number of Students	Percentage
70-100	Students who completed	31	87,39%
0-74	Students who did not complete	2	12,61%
Sum		33	100%

After conducting the learning outcomes test, it is known that the percentage of students who are complete is 87.39% and 12.61% are declared incomplete in the learning process. Students are declared complete in the learning process if the score obtained reaches the KKM set by the school. The KKM set by the school for biology subjects is 70. Learning is said to be successful and effective if at least 80% of students achieve a complete score. Thus, learning using comic strip learning media is included in the effective category because the completeness of students has passed 80%.

This comic strip learning media can be an effective media applied for students. In addition to the activity control by the user, students classically feel happy and not bored learning using comic strip media because in addition to interesting pictures, the language used in comic strips is simple and has the impression of using everyday language, besides that the presentation of interesting pictures and color combinations can increase students' interest in learning. This is in accordance with the theory which reveals that the advantages of comic strip learning media are able to increase vocabulary in readers, attract attention and foster students' interest in learning. With this motivation and interest in learning, students will participate in learning activities well so that they can achieve good learning outcomes (Handayani, 2005).

Based on the results of the analysis of the validity, practicality and effectiveness of the learning media developed, we know that this media meets the criteria for feasibility to be used in the learning process either in groups or used independently. the criteria for development results are declared effective if learning using the developed product is able to achieve the learning objectives indicators. Indicators of learning objectives can be analyzed through the classical completeness of students (Wahyu & Ahmad, 2020).

CONCLUSION AND RECOMMENDATION

Based on the results of the research and discussion, it can be concluded that the characteristics of comic strip learning media on human reproductive system material are in the very good category by meeting the criteria of being very valid, very practical and very effective.

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