

## Students' Responses to the Comic based on the Local Potential of West Kalimantan on Biodiversity Material 10<sup>th</sup> Grade of MAN 2 Pontianak

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Received: July 28<sup>th</sup>, 2021

Accepted: January 18<sup>th</sup>, 2022

Online Published: January 31<sup>st</sup>, 2022

### Abstract

Comics are one instance of visual media that can be used as learning media. Comics engage students to be more interested, motivated, and entertained so that they can help teachers deliver learning materials. The comics developed in this study contain material about the biodiversity that exists in West Kalimantan, especially endemic flora and fauna, considering that West Kalimantan has various potential for diversity. This study aims to determine the feasibility of comics based on the local potential of West Kalimantan on biodiversity material as a learning medium for class X MAN 2 Pontianak and to determine student responses to the developed learning media. The form of this research is descriptive with a survey research method. The sample in this study was class X MIA 4 MAN 2 Pontianak which was selected through a purposive sampling technique. The instruments used were comic media validation sheets and student response questionnaires. Based on the results of the validation data analysis, the calculation of the CVR and CVI values against the 11 assessment indicators, it was found that the comic media developed was categorized as valid with the CVR and CVI values by 1. The results of student responses to the developed comic media, for 3 aspects including cognitive, affective, and conative is 76.18% with a high category. Cognitive responses of 77.6%, affective responses of 78.3%, and conative responses of 72.66% with a high category, respectively. Therefore, comic media based on local potential of flora and fauna endemic to West Kalimantan is feasible to be used as a learning medium in class X in MAN 2 Pontianak, and student responses to the developed media are categorized as strong responses.

**Keywords:** Student Response; Comics; Local Potential; Endemic Flora and Fauna; West Kalimantan.

### How to cite this article :

Eka Sari, Yeni, L. F., & Yuniarti, A. (2022). Students' Responses to the Comic based on the Local Potential of West Kalimantan on Biodiversity Material 10th Grade of MAN 2 Pontianak. *IJIS Edu : Indonesian Journal of Integrated Science Education*, 4(1), 27-39. doi:<http://dx.doi.org/10.29300/ijisedu.v4i1.5040>

## INTRODUCTION

Technological developments and advances affect many fields, one of which is education. Education aims to improve the quality of human resources, and one of the efforts is through a learning process. Learning activities are the most important activities in an effort to improve the quality of Indonesian education (Farida et al, 2020, p.8). During the learning process, a tool well-known as learning media is needed. Learning media that are commonly used vary such as audio, visual, and audio-visual media (Selviani, 2019). Djamarah and Zain (2010), suggest that the media can be used as a channel for messages to achieve learning objectives. The use of instructional media is expected to attract students' attention to foster learning motivation, understand learning materials, and make teaching methods more varied such as observing, doing, and demonstrating (Sudjana and Rivai, 2013)

Visual learning media is commonly used in the teaching process. Visual media are media that only rely on the sense of sight (Djamarah, 2013). One example of visual media that can be used as a learning medium is comics. Comics are defined as a form of the cartoon that reveals characters and plays a story in a sequence of interconnected images designed to provide entertainment to readers (Rohani, 2014). In this case, comics function as messengers of learning with visual media that are packaged as attractively as possible so that students are more interested in learning (Indaryati & Jailani, 2015). Students' interest in learning has an important role in the learning process, because it will have a major impact on students' attitudes and behavior during the teaching and learning process (Novitasari et al, 2021).

Based on the results of interviews conducted with biology subject teachers in 5 schools, SMA Negeri 7 Pontianak and MAN 1 Pontianak on 19 February 2019, MAN 2 Pontianak on 27 February 2019, Pontianak Mujahidin High School on 8 March 2019, and Muhammadiyah High School 1 Pontianak on 27 March 2019, it is known that in terms of biodiversity, MS PowerPoint presentation media are used by 3 schools, MS PowerPoint presentation and nature media are used by 1 (one) school, as well as internet media through smartphones and outdoor learning in 1 school. According to student responses to the use of the media, 4 teachers stated that most of the students responded well, while 1 teacher stated that the

students' responses were balanced between those who understood the material and those who did not pay attention to the learning material.

The media used by the teacher was adequate, but the MS PowerPoint presentation was incomplete in terms of image examples, for example, there were only material explanations with no examples of images on gene diversity. According to the MAN 2 Pontianak teacher, MS PowerPoint presentation has a drawback that it cannot be used when the power goes out, as the result, learning becomes ineffective and according to the Mujahidin High School teacher, when technical problems occur such as a problem with the laptop, LCD projector, or missing files, MS PowerPoint presentation cannot be presented, resulting in the delivery of material with the absence of media.

Comics have the benefit of making students more motivated, enthusiastic, and interested in learning because of their attractive appearance and the presence of pictures in the form of stories. According to Wahyuningsih (2012) the presence of pictures in comics can help students understand the material, students become attentive in reading and finding main ideas faster, explanations of material in comics become concise so they are not bored reading them. The comic is easy to use at any time without the need of utilizing electronic devices. According to Sudjana & Rivai (2013), comic books can be used effectively by teachers to foster motivation, develop vocabulary and reading skills, as well as to expand reading interest.

Students' response to comics was categorized very high, with a field test obtaining an average students' responses of 84.60 (Indaryati & Jailani, 2015). Students responded to comics very positively. The average student response score on the material component was 3.28 with a very good category and the media component was 3.19 with a very good category. Some students commented that comics can be used as learning media, and they are interested and happy to learn to use comics (Lestari, 2016).

Comics are expected to make students more interested, motivated, and not bored and can help teachers deliver material at school. Biodiversity material is explained in the form of stories with characters accompanied by pictures and there is the diversity that is owned by West Kalimantan.

Biodiversity is one of the materials in biology class X odd semester. The scope of the

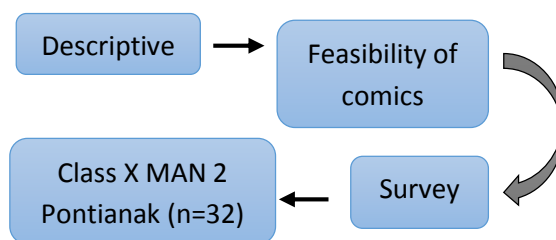
material on the biodiversity system in the 2013 curriculum syllabus as a whole, discusses the concept of gene diversity, species, and ecosystems; Indonesia's biological diversity (genes, species, ecosystems), flora, fauna, microorganisms, Wallace's line, and Weber's line; The uniqueness of the tropical rainforest; Utilization of Indonesia's biodiversity; and Efforts to preserve Indonesia's biodiversity.

Biodiversity is one of the most important topics in the biological sciences and has a broad object of study that is found in real life. Based on RI Law No. 20 of 2003 article 36, the curriculum is prepared by taking into account one of them, namely the diversity of regional and environmental potentials.

The comics made in this study contain learning material about the biodiversity of West Kalimantan, especially endemic flora and fauna, considering that West Kalimantan is an area that has various potentials for diversity. According to Harahap (2015), West Kalimantan has a fairly large forest area with fairly high species diversity and has abundant flora and fauna. Potential fauna that has been known are 54 species of mammals, 301 species of birds, 33 species of reptiles, 79 species of amphibians, and 257 species of fish (Balai TNBK, 2000). In addition, there are no less than 1217 plant species (Kurnia et al, 2005).

The many actions of tree loggings, forest burnings, and poaching cause flora and fauna to be threatened with extinction. Students were expected to know the flora and fauna found in their area so that students could carry out conservation of biological natural resources to preserve flora and fauna. In addition, it was necessary to look at the student's response to the comic that had been developed as a learning medium on biodiversity material that presents the local potential of endemic flora and fauna of West Kalimantan, regarding cognitive, affective, and conative aspects. According to the explanation above, the researchers are interested in researching "Student Responses to Comics based on Local Potential of West Kalimantan on Biodiversity Materials for Class X MAN 2 Pontianak".

## METHOD



This study was conducted in the form of descriptive research. Descriptive research in this study is to describe the feasibility of comics based on local potential of West Kalimantan as a learning medium for Biodiversity Materials for class X MAN 2 Pontianak. The research method used was a survey. In this study, the survey was conducted to determine student responses to comics based on the local potential of West Kalimantan on the material on biodiversity for class X MAN 2 Pontianak.

The population in this study were students of class X MAN 2 Pontianak. In the selected school, 1 class ( $n = 32$  students) was taken as a sample through the purposive sampling technique. The class sample in this study was selected based on the teacher's considerations which were adjusted to the inclusion criteria in determining the number of samples.

The procedure of this research includes the preparation stage, the implementation stage, and the final stage. In the first stage, the steps taken were to check the 2013 odd semester curriculum syllabus for biodiversity materials, to compile a list of endemic plants and animals based on literature studies, and to develop research instruments. In the implementation stage, the steps taken were making comics based on the local potential of West Kalimantan on biodiversity material, examples of the lesson plan and students' worksheets, validating comic instruments by 2 validators, and validating comics for biodiversity material and student response questionnaires by 5 validators. The validators consist of 2 lecturers of the biology education study program and 3 high school/MA biology subject teachers. After validation, the comic revision and student response questionnaires were carried out, followed by scheduling for filling out questionnaires with predetermined schools. After that, student response questionnaires were distributed to students who participated as respondents, namely class X MIA 4 students of MAN 2 Pontianak. In the final stage, the steps taken were to describe the results of the validation of the developed media, to

describe the results of student response questionnaire analysis, to conclude, and to compile research results.

The instruments used in this study were media validation sheets and student response questionnaires. The media validation sheet consisted of 4 aspects such as physical, design and color, images and writing, and content. While the student response questionnaire consisted of 3 aspects, namely cognitive, affective and conative with 20 statements which were divided into 2 types, namely 13 positive statements and 7 negative statements.

The validity analysis of the comic was carried out using the Content Validity Ratio (CVR). After calculating the CVR value for each criterion, the CVI (Content Validity Index) value or the overall average CVR value is calculated to illustrate that the overall instrument items have good content validity. The student response questionnaire analysis was carried out using a Likert scale.

## RESULTS AND DISCUSSION

The data collected by the researchers included the feasibility of comics based on the local potential of endemic flora and fauna of West Kalimantan by validators and student responses to comics based on the local potential of endemic flora and fauna of West Kalimantan. The comics were made up of 41 pages with the image shown in the image below.



Figure 1. Examples of Comic Drawings

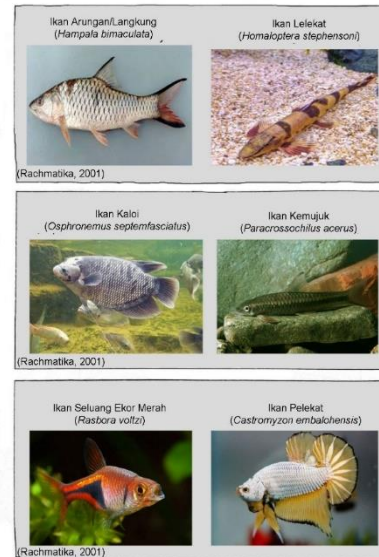


Figure 2. Examples of Comic Drawings



Figure 3. Examples of Comic Drawings



Figure 4. Examples of Comic Drawings

### Feasibility of the Comics

Based on Table 1, the results of validation data analysis, calculation of CVR and CVI values against 11 assessment indicators obtained that comic based on the local potential of endemic flora and fauna of West Kalimantan in class X biodiversity material was categorized valid with CVR and CVI values of 1. This indicates that the comics that have been made are suitable to be used as learning media on diversity material class X of MAN 2 Pontianak.

The physical feasibility aspect measured consisted of 3 statement criteria with an average

value of CVR and CVI 1 and included valid criteria. Overall, the physical feasibility aspect of the comic is appropriate.

CVR (Content Validity Ratio) is one of the widely used methods to measure content validity. This approach is basically a method of measuring agreement among raters or judges about the importance of a particular item. While CVI (Content Validity Index) is one method to measure validity based on the appraiser's agreement on all items.

Table 1. Recapitulation of comic Validation Values

Physical Aspects	Criteria	Validator					CVR	Note
		1	2	3	4	5		
	1. Suitability of comic shape and size for ease of use.	4	4	4	4	4	1	Valid
	2. Selection of material resistance and type of paper cover for durability.	4	4	4	4	4	1	Valid
	3. Suitability of the choice of paper type and printing machine for comic content for the good print results and attractive color display.	4	4	4	4	4	1	Valid
Design and Color	4. Suitability and attractiveness design and color of the cover.	3	4	4	3	3	1	Valid
	5. Appropriateness and attractiveness of content design and color of the comics	3	3	4	4	3	1	Valid
Image and Writing	6. Clarity and suitability of images	4	4	4	3	4	1	Valid
	7. Appropriateness of font type and font size	4	4	4	4	4	1	Valid
Content of Material	8. Systematic presentation and clarity of the material.	4	3	4	4	4	1	Valid
	9. Suitability of the content of the material with standard competent, indicators, and learning objectives to be achieved	3	3	4	4	4	1	Valid
	10. The simplicity of the material presented in comics.	4	4	4	4	4	1	Valid
	11. Suitability and attractiveness of the local potential of West Kalimantan presented with material coverage	3	4	4	4	4	1	Valid
CVI						1	Valid	

On the first criterion, the shape and size of the comics, the CVR and CVI values are 1 and thus it showed that the comics made have the appropriate physical form and are easy to use. This was supported by the opinion of Utariyanti,

et al (2015) which states that comics in the form of printed books have benefits, for example, students can easily use them anytime without the use of electronic devices. According to Sutrisna and Mansoor (2015), the dimension of comics is based on the size of published educational

comics, the two formats often used are the sizes of 22 cm x 15 cm and 24 cm x 18 cm. However, the dimension of the developed comic is 21 x 14 cm. The reason the size was designed differently is to make it easier to bind. In the second criterion, the durability of the material and the paper type of the cover, CVR, and CVI values are 1. Therefore, this shows that the comic has an adequately durable cover. On the third criterion, the selection of the type of paper and printing machine for the contents of the comics, the CVR and CVI values are 1. It shows that the quality of print results is good and the color display is attractive. There was no suggestion from the validator regarding the physical feasibility aspect.

The measured design and color aspects consisted of 2 statement criteria with the average CVR and CVI values of 1 and classified as valid. It indicated that the color and design of the comic were suitable. Before being revised, the cover design received a score of 2 from one of the validators. The cover design before the revision was not suitable because there were no inserted images of endemic flora and fauna on the cover. After being revised, it was scored 4 and rated suitable. In addition, the validator also suggested that the cover should be drawn originally to avoid copyright violation. The color on the cover was previously not bright enough, as a result, it became less attractive. After being revised the color became brighter and attractive. According to Sudjana and Rivai (2013), the colors displayed in a media must be harmonious and far from the slums impression that may interfere with student observations. There were several suggestions from the validator for the design and color feasibility aspects such as the criteria for suitability and attractiveness of design and color of the cover and the content.

The measured image and writing aspects consist of 2 statement criteria with an average value of CVR and CVI by 1 and are classified as valid. This showed that the developed comics have engaging images, clear writing, appropriate font size and typeface, and language that is easy to understand. Nugraha (2013) states that a balanced combination of images, colors, and text is important because it can make visual media more attractive.

The images presented in the comics can help students to contextually understand the material. According to Gene (in Avriliyanti, 2013), comics consist of pictures that can facilitate understanding and strengthen memory. There are several suggestions from the validator

for the aspects of images and writing, such as mistyping, the absence of information such as image sources, and description of microorganism images displayed.

The feasibility aspect of the content of the material measured consists of 4 statement criteria with the average CVR and CVI values being 1 and classified as valid. This shows that the comic created has a systematic presentation and clarity of the material, the content of the material is following standard competence, indicators, and learning objectives to be achieved, the material in the comics presented is simple and the local potential of West Kalimantan is presented attractively and following the scope of the material, so that it can help students more easily understand the material on biodiversity.

The comic material which was created for 1 meeting also needed to be conveyed using other media owned by the teacher because not all of the biodiversity material was delivered using comics. The comic material was presented in uncomplicated language and clear descriptions of events to make it easy to be understood. There were several suggestions from the validator, namely the addition of learning objectives and endemic concepts.

#### **Students' Responses to Comics Based on Local Potential of Endemic Flora and Fauna of West Kalimantan.**

The students' responses seen from this study were how students responded and reacted after reading and studying comics based on the local potential of flora and fauna in West Kalimantan. Students' responses to the comic based on the local potential of flora and fauna in West Kalimantan were measured through a questionnaire consisting of 20 statements and divided into 13 positive statements and 7 negative statements. Respondents consisted of 32 students of class X from MAN 2 Pontianak.

Based on table 2, it can be seen that the results of students' responses to the comic based on the local potential of flora and fauna in West Kalimantan for 3 aspects, namely cognitive, affective and conative was 76.18% with a strong category.

Cognitive responses are related to one's thoughts or perceptions about the attitude object. This can be identified from the expression of one's belief in something (Amir, 2015:15). The average cognitive response was 77.6% with a strong category. Cognitive responses were divided into 6 statement indicators as follows.

1) Students' perceptions of the use of sentences in comic

The use of sentences in this comic was considered uncomplicated to prevent difficulty in understanding the material. The statement of "Sentences in the comics are simple and easy for me to understand" obtained students' responses of 87.5% with a very strong category. The statement of "Questions in this comic is presented in sentences that are difficult to understand so that I am confused to answer it" obtained 68.75% with a strong category. Therefore, based on the results obtained, it can be concluded that the sentences in the comics have used simple sentences so that they are easy to understand and not complicated. Good sentences are simple, short, clear, effective, and efficient for students to easily understand them. According to Sitepu (2015: 117), if the meaning of one word is not understood or misunderstood, it can result in a misunderstanding of the entire content of the sentence.

2) Students' perception of typeface, font size, and spacing in comic

The selection of typeface, font size, and spacing in the comics was considered appropriate so that it could facilitate reading comics. The selection of typeface, font size, and spacing in the comics obtained students' responses of 69.375% with a strong category. Students do not agree with the statement that "The choice of typeface, font size and spacing in this comic is too narrow,

making it difficult for me to read it." It was because the comics were made using the appropriate typeface, font size, and spacing so that they can be read clearly by students.

3) Students' perceptions of the material presented in the comic

The material presented in the comic was considered very clear. The students' response obtained was 80% with a strong category. The statement of "The material presented in this comic made me understand the material on biodiversity.", obtained students' responses by 85.625% with a very strong category. This shows that students agree with the statement. For the statement that "The material presented in the comic did not help me in answering the evaluation questions", the students' responses were 79.375% with a strong category. This shows that students did not agree with the statement. Furthermore, for the statement of "It was difficult to understand the material in this comic", the students' response obtained was 75% with a strong category. This shows that students did not agree with the statement. This was because the material presented in this comic was delivered completely and systematically to make students understand the material presented easily and could assist students in answering the questions. This claim is in line with the opinion of Sitepu (2015:78) that the main material to be discussed should be explained thoroughly so that students can see the relationship between learning goals and how to achieve these goals.

Table 2. Analysis Results of Students' Response Questionnaire

Aspect	Indicators	Response Student	
		Score Percentage (%)	Category
Cognitive	Students' perception of the use of the phrase in the comic.	78.13	High
	Students' perception of the typeface, font size, and text spacing in the comic	69.38	High
	Students' perception of the material presented in comic	80.00	High
	Students' perception of the questions provided	75.00	High
	Students' perception of the use of comics media in the classroom	80.00	High
	Students' perception of the presentation of West Kalimantan's local potential in biodiversity comics	83.13	Very High
<b>Average of Cognitive Aspect</b>		<b>77.60</b>	<b>High</b>
Affective	Students' interest in the presentation of the content materials	80.00	High
	Students' interest in comics as learning media.	76.56	High
	Students' curiosity about the research results presented on the biodiversity of West Kalimantan	80.00	High
	Students' interest in the picture presented	75.63	High

	Students' interest in the overall appearance of comics	83.13	Very High
	Student satisfaction with the developed comics	74.40	High
	<b>Average of Affective Aspect</b>	<b>78.30</b>	<b>High</b>
Conative	Motivation to try	69.38	High
	Tendency of students to use comic	75.94	High
	<b>Average of Conative Aspect</b>	<b>72.66</b>	<b>High</b>
	<b>Total Average</b>	<b>76.18</b>	<b>High</b>

The content of the comics was collected from several sources for reference incorporating local potentials of endemic flora and fauna that exist in West Kalimantan. It aims to broaden students' knowledge, and thus students can find out what endemic flora and fauna exist in their area. In addition, the material presented in the comic was delivered with illustrations and images. According to Sitepu (2015: 151), the use of illustrations can help students understand concepts that are difficult to explain in words, help students to remember longer, and can attract the readers' attention.

- 4) Students' perceptions towards the questions or quizzes provided

The questions or quizzes at the end of the comic were intended to measure the mastery of the material achieved by students in each learning activity (Prastowo, 2015:156). The quizzes presented in the comic were considered to have been presented with clear sentences, and thus it allowed students to answer the questions conveniently. The response obtained was 75% with a high category, meaning that students did not agree with the statement "I'm not sure I'll succeed in doing the quiz in this comic because it's too difficult." In this indicator, it can be seen that students believed they were able to work on the questions because the questions were presented in clear sentences and can give clues to the correct answers.

- 5) Students' perceptions towards the use of comics in classroom learning.

The use of comics in learning was considered easy to understand. The student response obtained was 80% with a high category. It shows that students agreed with the statement "I think the use of comics in learning makes it easier for me to understand the learning material." It is because the learning materials were presented in the form of stories with simple sentences so that they were easily understood by students.

- 6) Students' perceptions towards the presentation of the local potential of West Kalimantan in biodiversity comics.

The presentation of the local potential of West Kalimantan in this comic is considered to increase the knowledge and is a new experience for students. The student response obtained was 82.5% with a very high category, for the statement "The presentation of the local potential of West Kalimantan has broadened my knowledge." This shows that students agree with the statement because, with the presentation of the local potential of endemic flora and fauna of West Kalimantan, students become aware of what endemic flora and fauna exist in West Kalimantan.

#### a. Affective Response

Affective responses show a person's attitude which can be inferred from a person's feelings on the object of his attitude (Amir, 15:17). The results of the analysis of the average response are 78.3% with a high category. Therefore, most of the students were interested in studying biodiversity material using comics. In addition, the overall appearance of comics was also considered to be able to increase students' motivation and curiosity about biodiversity material.

The affective response consists of 6 indicators, the statement is as follows:

- 1) Students' interest in the presentation of the local potential of West Kalimantan in biodiversity comics.

This indicator obtained information from the statement "The presentation of the local potential of West Kalimantan on biodiversity material is a new experience for me" with the response of 80% with a high category. It means that the presentation of the local potential of West Kalimantan flora and fauna in comics was considered a new experience that engaged the students to read the comics.

- 2) Students' interest in comics media.

This indicator shows a student response of 76.56% with a strong category. In the statement "Learning to use comics material on biodiversity is a new experience," students' responses are 75.63% with a strong category. It indicates that students had never learned a



learning material using comics, and for the statement “Comics make me interested in studying biodiversity material”, the student response is 77.5% with a strong category. It shows that comics media can make students interested in learning about biodiversity. According to Daryanto (2013: 14), the attraction lies in combining colors, images, shapes, and sizes of matching letters, the content of comics places stimuli in the form of images or illustrations that are carefully packaged.

3) Students' curiosity about the presented material of local potential of West Kalimantan

In this indicator, information was obtained in the statement which stated that “The presence of local potential offerings in West Kalimantan adds to the curiosity of the students” obtained students' response by 80% with a high category. This means that the presentation of the local potential of West Kalimantan in the comics increased the curiosity of the students. This statement is in line with the opinion of Nurfauziyah (2015: 238) which declared that fostering curiosity and new things for students can stimulate students' curiosity.

4) Students' interest in the images presented

In this indicator, students' responses showed results by 75.63% with a high category of statements stating that “The background images and characters presented in this comic are interesting so that it makes the students excited to read them.” This means that the images displayed were attractive. This is in line with the opinion of Prastowo (2014: 209) stating that attractive images can foster students' interest in reading.

5) Students' interest in the overall appearance of the comics

In this indicator, students' responses showed results by 83.13% in a very high category for the statement of “The overall presentation of flora and fauna images in this comic is interesting.” This shows that the images in the entire presentation of flora and fauna pictures were interesting for students. According to Daryanto (2013: 14), attractiveness starts from the attractive cover, content, and the presentation of exercises.

6) Students' satisfaction with the use of comic

In this indicator, 2 negative statements received 74.4% of students' responses with a high category. This means that students did not settle with the negative statement. For the statement of “Feeling discontent with the material obtained from the comics”, students' response was 73.75%

with a high category. This shows that students were satisfied with the material obtained from the comic. Meanwhile, for the statement of “Feeling dissatisfied with the display of flora and fauna in comics”, students' response was 75% with a high category. This shows that students were satisfied with the display of flora and fauna in the comics.

#### b. Conative Response

The conative response is related to behavioral tendencies, desires, and actions related to attitude objects (Amir, 15: 17). The analysis results of the average conative response were 72.66% with a high category.

Conative responses consisted of 2 statement indicators as follows:

1) Desire to try

In this indicator, students' responses showed 69.38% of statements “By learning with this comic, I want to practice working on evaluation questions.” This shows that students had the eagerness to try to practice the evaluation questions in the comics. According to Nurfauziyah (2015: 238), the desire to try new things can be grown through a challenge.

2) The tendency of students towards the use of comic media

In this indicator, students' responses were obtained by 72.66% with a high category. For the statement of “The evaluation questions in this comic can measure my understanding of the material on biodiversity”, the students' responses were 78.75% with a high category. This shows that the students agreed with the statement. As for the statement of “After listening to the material on biodiversity in this comic, I believe that I will succeed in the test that will be given by the teacher”, the students' response was 73.13% with a high category. This result is supported by the opinion of Prastowo (2014: 237) that evaluation questions can measure students' understanding of the outline of the materials.

#### CONCLUSION

Comic media based on local potential of endemic flora and fauna of West Kalimantan is feasible for use as learning media in class X in MAN 2 Pontianak with an average CVR and CVI value of 1. Student responses to comic media based on local potential of endemic flora and fauna of West Kalimantan are classified as high category responses with an average percentage of 76.18%. Further research is needed on the implementation of comics based on the local potential of endemic flora and fauna of West

Kalimantan in learning in schools to see the effectiveness of using comics on student learning outcomes. Furthermore, it can be developed into a comic based on a learning model or based on multimedia so that it is more varied.

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