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Feasibility Interactive PowerPoint Sub-Material Biodiversity Utilization Based Inventory Traditional Ceremonial Plants

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ABSTRACT

As a result of the development of the current modernization for the next generation, namely considering ancestral culture as a feature of backward society and abandoning traditional lifestyles. These subjects can be approached though biology learning, especially on the utilization of biodiversity sub material. The existence of information delivery through interactive PowerPoint can help students as the next generation to see ancestral culture, not as a feature of backward communities. The purpose research is to determine the feasibility interactive PowerPoint learning media the sub-material the utilization biodiversity. The research method is descriptive quantitative. The research was carried out in 2 stages, namely an inventory traditional ceremonial plants the Dayak Bidayuh Tribe, Hlibuei Village, and a feasibility test interactive PowerPoint media. Through the inventory stage, we found 20 plants used by the Dayak Bidayuh tribe as ceremonial plants. Media validation consists of 6 validators, namely 3 material experts and 3 media experts. The validation results get the RTV_{TK} 3.67 by material experts and media experts of 3.65. Based on the category of validity by looking at the value of RTV_{TK} obtained, interactive PowerPoint media is suitable for use in learning biodiversity sub-material.

Keywords: Eligibility, Interaktif PowerPoint, Plants, Validation

Introduction

In biology learning, there are several studies on the use of biodiversity, including biodiversity as a source of clothing, food, shelter, medicine, and cultural aspects (Irnaningtyas, 2013). The cultural aspect referred to in this study is the utilization of plant biodiversity at the traditional ceremony of the Bidayuh Dayak Tribe, Hlibuei Village, Siding District, and Bengkayang Regency. The use of plants in a traditional ceremony is a cultural heritage that is inherited based on the knowledge and experience of certain tribes (Pandapotan et al., 2018)

The use of plants in a certain tribal ceremony shows the characteristics of that tribe. However, the increasing flow of modernization can have an impact on the characteristics of each tribe, where these characteristics become displaced and also disappear due to reduced utilization. The development of modernization has also resulted in future generations viewing ancestral culture as a feature of disadvantaged communities, resulting in them abandoning traditional lifestyles and being more attracted to things outside their cultural area. This is in line with the expression (Arifin et al., 2016), in which the development of modernization flows can shift local cultural values toward foreign cultures. The problem was felt when conducting interviews, where knowledge about traditional ceremonies plants used in Bidayuh Dayak Tribe was only known by elders in the community. The solution to this problem can be done organizing information the use plants in traditional ceremonies in learning media be introduced student generations.

January 13, 2020 interview with the biology teacher class X SMAN I Jagoi Babang obtained information that in studying the sub-material the use Indonesia biodiversity, the teacher uses books as a learning resource. In learning the teacher has difficulty guiding students to observe, classify and discuss various examples the use plant biodiversity. From the observations, it is also known that the school has provided blackboard facilities, electricity, computers, electrical terminals, and generators to support learning. Looking at the facilities provided, it can be said that schools will have no problem making projector-based media such as interactive PowerPoint.

PowerPoint is a multimedia-based presentation program which has the ability to process text, colors and images as well as animation according to the creativity of its users (Daryanto, 2016). According to (Maryani, 2014) the notion of interaction itself is related to two-way or more communication, wherein its use there is a relationship between product users and products in certain formats (computers/applications/software). (Susanti, 2014) said the use of interactive PowerPoint media is flexible or not rigid, that is, it can be displayed in front of the class or divided by each student during the learning process. According to (Prayitno & Mardianto, 2020), interactive PowerPoint is a general media which in the process of making it is easy and able to attract the attention of students when used. PowerPoint is also able to be a source for designing animation so that it can develop other features contained in the media (Ikhsan, 2021).

There are previous studies that prove interactive PowerPoint media are feasible and effective for use in learning, such research (K et al., 2018) with the acquisition scores RTV_{TK} 3.45 by material experts, interactive PowerPoint media is suitable for use in learning and 3.70 by media experts. Another study conducted by (Basthoh & Novyta, 2018) showed that interactive PowerPoint media can improve learning outcomes, based on the acquisition research indicator scores 92.86% and this is categorized good. In addition, (Syavira, 2021) also conducted research with an average score of 90.97%, this is categorized as very good and suitable to be used as a learning medium. Another study was also carried out by (Raspati & Zulfiati, 2020), with an average acquisition of 3.25 (very good) media experts and 3.60 (very good) material expert, thus interactive PowerPoint is suitable for use as a medium in teaching and learning activities.

The existence of interactive PowerPoint media is expected to facilitate students in the learning process sub-material the use of Indonesia biodiversity. This media is also expected to

help students as the next generation to see ancestral culture, not as a feature of backward society which causes them to leave their traditional lifestyle.

Methods

This study uses a quantitative descriptive method. The research was carried out in 2 stages, namely (1) an inventory traditional ceremonial plants the Dayak Bidayuh tribe and (2) a feasibility test for interactive PowerPoint media. The PowerPoint media feasibility test was carried out in 3 stages, namely (1) interactive PowerPoint media creation (2) interactive PowerPoint media validation (3) validation data analysis. Interactive powerpoint creation procedures (1) open Microsoft Office PowerPoint, (2) design the slide background, (3) write text on each slide according to the script, (4) give color, contrast and text composition, (5) include pictures/photos and animation, (6) include back sound, videos, create hyperlinks, (7) make learning evaluations.

The second stage is a validation of interactive PowerPoint media. After validating the instrument, then media validation was carried out by 6 validators, namely 3 material experts and 3 media experts. The material expert involved 1 Biology Education lecturer at FKIP UNTAN and 2 high school biology teachers in class X. The media expert involved 1 Biology Education lecturer at FKIP UNTAN, a creative expert from the West Kalimantan National Research and Innovation Agency, and 1 ICT teacher.

The third stage, namely the analysis of the results interactive PowerPoint media data validation. Data analysis used the average total validation of RTV_{TK} which refers to the inner (Yamasari, 2010), with the following steps:

(1) Determine the average of each criterion (Ki) of the three validators:

$$Ki = \frac{\sum_{h=1}^{3} V_{hi}}{3}$$

Information:
Ki = average of criteria i
Vhi = the score of the h-the validator assessment for the i-the criterion
i = criteria

(2) Finding the average of each aspect (Ai),

$$Ai = \frac{\sum_{h=1}^{3} V_{hi}}{3}$$

Information:
Ai = average of criteria i
Vhi = the score of the h-the validator assessment for the i-the criterion
i = criteria
h = validator

(3) Matching the total mean score with the criteria with validity:
$3 \leq RTV_{TK} \leq 4$ = Valid
$2 \leq RTV_{TK} \leq 3$ = Fairly valid
$1 \leq RTV_{TK} \leq 2$ = Invalid

If it is said to be "valid" then the media is feasible to use. If it is said to be "fairly valid" then the media is suitable for use with improvements and if it is said to be "invalid" then the media is not suitable for use.

Results and Discussion

Based the inventory traditional ceremonial plants of the Bidayuh Dayak tribe Hlibuei Village, Siding District, Bengkayang Regency, the data obtained from the inventory are the types of

traditional ceremonies and the types of plants used. The data from the inventory can be seen in Table 1.

Table 1. Data the Inventory Traditional Ceremonial Plants the Bidayuh Dayak Tribe

No	Family	Types of plants used	Parts used	Types of traditional ceremonies
1.	Arecaceae	*Areca catechu* L.	Fruit	Gawai/nibangk/nyobeng (thanksgiving harvest), nangiel (home making) dan plink (thanksgiving for the rice harvest)
		Cocos nucifera L.	Fruit	Gawai/nibangk/nyobeng (thanksgiving harvest)
		Arenga pinnata	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
2.	Poaceae	*Schizostachyum grandle*	Stem	Nangiel (home making)
		Oryza sativa	Fruit	Plink (thanksgiving for the rice harvest)
3.	Zingiberaceae	*Curcuma longa*	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
		Kaempferia galangal L.	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
4.	Liliaceae	*Allium tuberosum*	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
		Cordyline Fruticosa	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest) and Plink (thanksgiving for the rice harvest)
5.	Piperaceae	*Piper bettle* L.	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest) and Plink (thanksgiving for the rice harvest)
6.	Musaceae	*Musa paradisiaca*	Midrib	Gawai/nibangk/nyobeng (thanksgiving harvest)
7.	Solanaceae	*Nicotiana tabacum* L.	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest), nangiel (home making) dan plink (thanksgiving for the rice harvest)
8.	Moraceae	*Artocarpus integer*	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
9.	Rutaceae	*Citrus aurantifolia*	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
10.	Cucurbitaceae	*Lagenaria siceraria*	Fruit	Gawai/nibangk/nyobeng (thanksgiving harvest)
11.	Sapindanceae	*Nephelium lappaceum* L.	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
12.	Bombaceae	*Durio zibethinus*	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
13.	Meliaceae	*Lansium domesticumcorrea*	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)

No	Family	Types of plants used	Parts used	Types of traditional ceremonies
14.	Clusiaceae	*Garcinia mangostana*	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)
15.	Dilleniaceae	*Dillenia indica* L.	Leaf	Gawai/nibangk/nyobeng (thanksgiving harvest)

Based on the data in Table 1, it is known that there are many types traditional ceremonial plants the Dayak Bidayuh tribe, are 20 plant species 15 families. The data from the inventory is packaged in interactive PowerPoint learning medium the sub-material the use Indonesia biodiversity class X SMA. The display of interactive PowerPoint media will be seen in Figures 1-3.

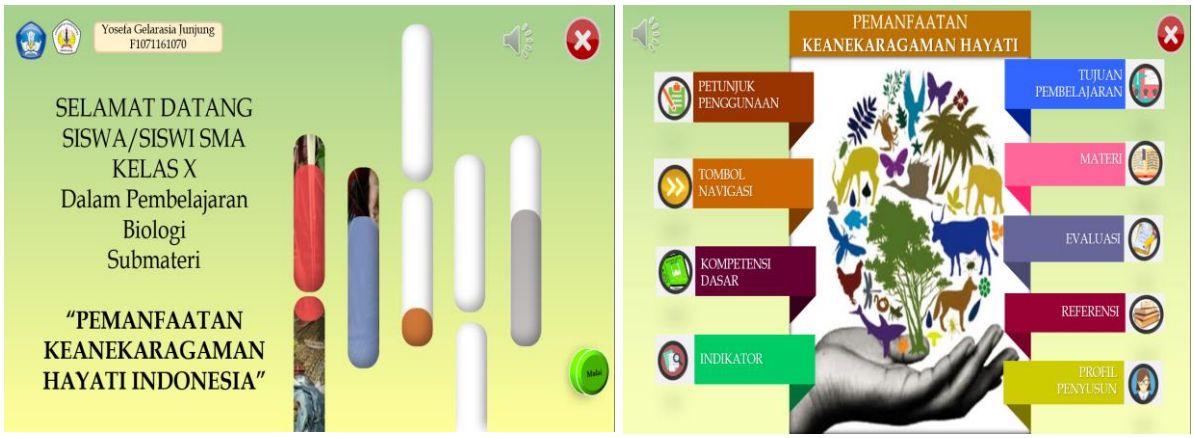

Figure 1. Display of the main menu in interactive PowerPoint

Figure 2. Material menu display in interactive PowerPoint

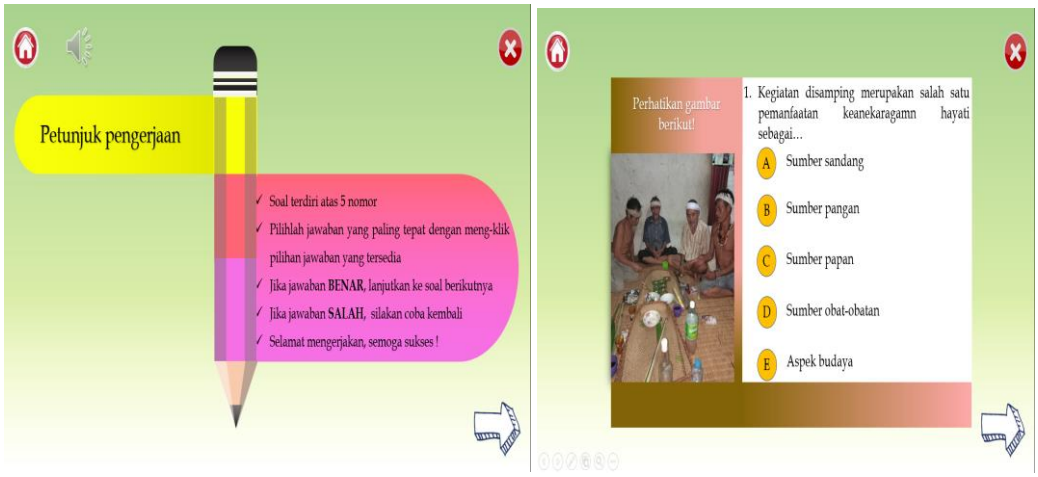

Figure 3. Evaluation menu display in interactive PowerPoint

The results and analysis of media validation for material experts and media experts can be seen in Tables 2 and 3.

Table 2. Validation Results of Material Expert Interactive PowerPoint Media

No	Aspect	Assessment criteria	Ki	Ai
1.	**Format**	1. The color of the writing contrasts against the background so it's easy to read	**3,33**	
		2. The image has a color that matches the original	**4,00**	
		3. Availability of clear and easy-to-follow instructions for using media	**4,00**	
		4. The navigation buttons on each slide work well and make the process easy to use	**4,00**	**3,57**
		5. The addition of images and animations adds to the aesthetic value of the media	**3,67**	
		6. Type and size of writing according to space, attractive and easy to read	**3,00**	
		7. The use of shapes on each slide is consistent, interesting and supports the explanation of the contents	**3,00**	
2.	**contents**	8. Learning objectives are following KD and competency achievement indicators	**4,00**	
		9. The material presented has met the learning objectives to be achieved	**4,00**	
		10. The presentation of the material is carried out in various ways (in the form of writing, pictures, or videos) and adjusted to the needs for easy understanding of students	**4,00**	
		11. The presentation of the material is coherent, clear, and precise so that it supports the right learning sequence	**3,33**	**3,79**
		12. The material presented is easy to understand, concise and interesting	**3,00**	
		13. The presentation of writing, images, audio, and video is appropriate and supports the delivery of material	**4,00**	
		14. The presentation information the use plants the traditional ceremony the Bidayuh Dayak tribe is unique and interesting so that it increases students' knowledge	**4,00**	

No	Aspect	Assessment criteria	Ki	Ai
		15. The presentation information the use plants the traditional ceremony the Bidayuh Dayak tribe is suitable and synergistic with learning objectives	**4,00**	
3.	**language**	16. The language used is in accordance with PUEBI rules (use of punctuation marks, use of capital letters, writing of foreign terms, writing of standard words)	**3,33**	
		17. The sentences used have the right structure in good and correct Indonesian rules	**3,33**	**3,66**
		18. The sentences used do not cause multiple interpretations or create misunderstandings	**4,00**	
		19. The sentence used does not mention the element of SARA	**4,00**	
		RTV_{TK}		**3,67**

Information:
Ki: Average of each criterion
Ai: Average of each aspect
RTV_{TK}: Average total validity

Table 3. Media Expert Interactive PowerPoint Validation Results

No	Aspect	Assessment criteria	Ki	Ai
1.	**Simplicity**	1. The background color is consistent and looks simple so that it attracts students' attention	**3,33**	
		2. Animations are used as needed and interesting	**3,00**	
		3. Pictures and videos are simple, clear, and easy to understand	**4,00**	**3,58**
		4. Selection of simple back sound (music instruments) so as not to disturb concentration during media use	**4,00**	
2.	**Cohesiveness**	5. The background theme between slides is consistent so that it blends	**4,00**	
		6. The color of the text contrasts with the background so it's easy to read	**3,00**	
		7. The selection of the back sound (music instruments) and the narrator's voice is appropriate for the context of the learning media	**3,33**	
		8. Instructions for using media are clear, appropriate, and easy to follow	**4,00**	**3,76**
		9. Videos displayed in attractive, concise, and appropriate media	**4,00**	
		10. The use of media is easy to understand and not difficult to do so it supports interactive learning	**4,00**	
		11. Navigation buttons work well and make it easy for students to use	**4,00**	
3.	**Emphasis**	12. Overall the media can communicate information clearly, effectively, and accurately	**4,00**	
		13. The material presented is clear, concise and as needed	**4,00**	**3,80**
		14. Evaluation questions are appropriate to emphasize student understanding	**3,00**	

No	Aspect	Assessment criteria	Ki	Ai
		15. Components writing and pictures give emphasis the explanation the content the material a variety ways	**4,00**	
		16. The images used have a high resolution so they are clear and easy to understand	**4,00**	
4.	**Balance**	17. The size of the image on each slide is balanced with the area of the frame or the space provided	**4,00**	
		18. The content of the writing on each slide is balanced with the area of the frame or the space provided	**3,33**	
		19. The font size on each slide is consistent and easy to read	**3,33**	**3,46**
		20. The writing layout of each slide is balanced and varied	**3,67**	
		21. The number of slides made according to the time allocated for interactive learning both in class and independently	**3,00**	
		RTV_{TK}		**3,65**

Information:
Ki: Average of each criterion
Ai: Average of each aspect
RTV_{TK}: Average total validity

Analysis of Material Expert Validation Results

Based on the results of the media validation data analysis by the material expert validator, it was found that the interactive PowerPoint media created was in the "valid" category with an RTV_{TK} result of 3.67. Based the results the calculation Ai (aspect average) it is also declared valid because it meets the criteria validity (Yamasari, 2010) which is 3≤ RTV_{TK} ≤4.

The RTV_{TK} value obtained shows that the interactive PowerPoint media is categorized as valid and suitable to be used as a learning medium the sub-material the use Indonesia biodiversity class X. The criteria for each aspect can be described as follows:

Format aspect
In the format aspect, the validator assesses the clarity or suitability of the material in terms of writing, instructions, images, and animations used in interactive PowerPoint media. in this aspect, the media contains images and animations in the form of photos of traditional ceremonies and plants used as well as animations that support the use of media. The typeface used is *Book Antiqua*. The validator considered that the use of letters was appropriate but there were some colors and sizes of letters that were not quite right so it was difficult to read. The results from the overall format aspect are valid with an Ai of 3.57. (K et al., 2018) say that the suitability of images, colors, and text used in media can help deliver material with theoretical properties.

Content aspect
In the content aspect, the validator assesses the content presented in interactive PowerPoint media, whether it is under the learning concept discussed, namely the use of biodiversity. Based on the validator's assessment, the content of the material presented in interactive PowerPoint is in accordance with the learning concept, namely the presentation of information about the use of plants in a unique and interesting Dayak Bidayuh traditional ceremony so as to increase students' knowledge. The results from the overall content aspect are declared valid with an Ai value of 3.79.

According to (Hayati & Harianto, 2017) attractive displays on media that are adapted to the material can increase students' grasping power so that they acquire knowledge, skills, or attitudes that can help achieve learning objectives. The results from the overall content aspect are declared valid with an Ai value of 3.79.

Language aspect

In the language aspect, the validator assesses the use of language and sentences used in interactive PowerPoint media. According to (Faramita et al., 2018) the use of good, short, concise, and clear language can make it easier for students to learn media content. (Prastowo, 2013) also said that standard terminology adapted to the level of education would make it easier for students to understand the material. Based on the assessment of the language and sentence validators in interactive PowerPoint in accordance with the PUEBI rules, but there is an inappropriate placement of punctuation marks and capital letters. The results of the language aspect as a whole are declared valid with an Ai value of 3.66.

Analysis of Media Expert Validation Results

The results of the media validation data analysis by media expert validators stated that the interactive PowerPoint media was categorized as "valid" with the results of RTV_{TK} (average) being 3.65. Based on the results the calculation Ai (mean musty) it is also declared valid because it meets the criteria validity according to (Yamasari, 2010) which is $3 \leq RTV_{TK} \leq 4$. The criteria for each aspect are described as follows:

Aspect of simplicity

In In the simplicity aspect, the validator assesses the simplicity the background color, back sound, animation and images used to the needs or not the selection a background that does not disturb concentration the use interactive PowerPoint media. According to the validator's assessment of the background color, images, videos used and the selection of back sound (music instruments) in a simple interactive PowerPoint so as not to disturb concentration during media use. The results from the simplicity aspect as a whole are declared valid with an Ai value of 3.58. According to (Hamidah, 2005) media is said to be simple if it is easy to obtain, easy to manufacture, and easy to use so that it allows the media to support learning.

Aspect of cohesiveness

This aspect refers to the interrelated and unified relationship of visual components which, when viewed, will function simultaneously in learning media (Apriani et.al., 2018).The suitability of the order between the slides on the media with the narration can affect the clarity of the material presented. This aspect refers to the interrelated and unified relationship of visual components which, when viewed, will function simultaneously in learning media (Apriani et.al, 2018). The suitability of the order between the slides on the media with the narration can affect the clarity of the material presented. In this aspect, interactive PowerPoint displays a background theme that will be combined with writing colors, the narrator's voice combined with a back sound, instructions for use with media users, videos with learning needs and navigation buttons with interactive PowerPoint media users. By looking at some of these combinations, the validator considers that interactive PowerPoint media is good to use, even though there are writing colors that do not match the background. The results of the overall integration aspect are declared valid with an Ai value of 3.76.

Emphasis aspect

According to (Listya, 2018) the concept/content in a media can give emphasis to make it easier for users to remember the messages contained in the media. On the emphasis aspect, the media displays several evaluation questions to make it easier for users to remember the messages contained in interactive PowerPoint. In addition, the media also displays images that emphasize the explanation of the content of the material. The results of the validator's assessment, namely the evaluation questions used did not give enough emphasis to the user, but the images used were able to emphasize the content of the material in the media. The results of the emphasis aspect as a whole are declared valid with an Ai value of 3.80. These results indicate that the emphasis on interactive PowerPoint media meets the eligibility criteria to be used as a medium in teaching and learning activities.

Aspect of balance

Balance is formed because of the interaction between elements in the media (Purnomo, 2018). The aspect of balance that is assessed this study, namely the clarity of the images and writing used, the balance of the layout of the writing on each slide as well as the number of slides with time allocation. according to the validator's assessment the images and writings on interactive PowerPoint media are clear, the layout of the writing on each slide is balanced but some of the slides used need to be omitted to fit the allocation of interactive learning time. The results of the overall balance aspect are declared valid with an Ai value of 3.46. Thus, the balance aspect of interactive PowerPoint media meets the eligibility criteria to be used as a medium in teaching and learning activities.

Advantages and Disadvantages of Interactive Powerpoint Media on the Use Indonesia Biodiversity

The advantages of this PowerPoint media are 1) contained pictures/photos the inventory traditional ceremony plants the Dayak Bidayuh Tribe, 2) text as a description of the pictures/photos displayed, 3) supporting animations, 4) audio, and 5) video of the traditional ceremonies of the Dayak Bidayuh Tribe, 6) the interactive PowerPoint media in this study can be used independently or in groups. This is in line with (Susanti, 2014) expression, that the use of interactive PowerPoint media is flexible or not rigid, that is, it can be displayed in front of the class or shared with each student during the learning process. The use of interactive PowerPoint media when delivering sub-materials on the use of biodiversity, especially the cultural aspect is expected to help students in learning and help students as the next generation to see ancestral culture, not as a feature of backward communities which causes them to leave their traditional lifestyle.

In addition to the advantages of PowerPoint, it also has weaknesses namely 1) having to be skilled in designing and operating slides so that they are attractive and easy for users to understand, 2) require careful preparation when using complex presentation techniques (animations), 3) able to determine frame designs that match the content of the material, and 4) requires a computer/laptop/mobile phone to use.

Conclusion

Based on the results of the interactive PowerPoint feasibility study the sub material the use Indonesia biodiversity class X, it was declared "valid" with an average total validation of RTV_{TK} of 3.67 by material experts and media experts of 3.65. Based the category validity by looking at the value of RTV_{TK} obtained, then interactive PowerPoint media is suitable for use in learning.

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