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DEVELOPMENT OF INTERACTIVE MULTIMEDIA MATERIALS ON ANIMAL CLASSIFICATION BASED ON FOOD CATEGORY AT GRADE V ELEMENTARY SCHOOL

Dinda Tiasna Maharani[1], Mahmud Alpusari[2], Neni Hermita[3]

[123] Riau University, Pekanbaru, Indonesia
[1]*dinda.tiasna3405@student.unri.ac.id*, [2]*mahmud.alpusari@lecturer.unri.ac.id*,
[3]*neni.hermita@lecturer.unri.ac.id*

PENGEMBANGAN MATERI MULTIMEDIA INTERAKTIF PENGELOMPOKAN HEWAN BERDASARKAN JENIS MAKANAN DI SD KELAS V

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ABSTRACT

Abstract: *This paper reports a developmental product in the form of interactive multimedia on animal classification material based on food category in class V SD with valid and practical criteria. The method used is the Research and Development (RnD) method with the Plomp model. The Plomp model is carried out in three phases, namely Preliminary Research, Development or Prototyping, and Assessment. The researcher tested the validity of three validators, which consist of media, material experts, and language experts or linguists. To see the practicality of the product that is developed, the researcher conducted a limited trial in the form of a small group trial with teachers and students. The results of the validity test indicate that the developed interactive multimedia was in a very valid category with a percentage of 93.205%. Meanwhile, the practicality of interactive multimedia based on the teacher's response questionnaire was 90.55% in the very practical category and based on the student questionnaire the percentage was 92.25% in the very practical category. Based on the results of the research, it can be inferred that interactive multimedia meets valid and practical criteria, so it is recommended to apply it on natural science learning subjects at school.*

Keywords: interactive multimedia, animal classification based on the food category, validity, practicality

Abstrak: Artikel ini melaporkan hasil pengembangan produk berupa multimedia interaktif pada materi pengelompokan hewan berdasarkan jenis makanan di kelas V SD dengan kriteria valid dan praktis. Metode yang digunakan adalah metode *Research and Development* (RnD) dengan model *Plomp*. Model *Plomp* dilakukan dalam 3 tahap, tahap *Preliminary Research*, *Development* atau *Prototyping*, dan tahap *Assesment*. Peneliti melakukan uji validitas dengan memvalidasi 3 orang validator yang terdiri dari ahli media, ahli materi, dan ahli bahasa. Untuk melihat kepraktisan produk yang dikembangkan, peneliti melakukan uji coba terbatas berupa uji coba kelompok kecil dengan guru dan siswa. Hasil uji validitas menunjukkan bahwa multimedia interaktif yang dikembangkan berada pada kategori sangat valid dengan persentase 93,205%. Sedangkan kepraktisan multimedia interaktif berdasarkan angket respon guru sebesar 90,55% termasuk kategori sangat praktis dan berdasarkan angket siswa diperoleh persentase 92,25% termasuk kategori sangat praktis. Berdasarkan hasil penelitian dapat disimpulkan bahwa multimedia interaktif ini memenuhi kriteria valid dan praktis sehingga dapat menjadi rekomendasi dalam pembelajaran IPA di sekolah.

Kata Kunci: multimedia interaktif, klasifikasi hewan berdasarkan jenis pangan, validitas, kepraktisan

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INTRODUCTION

At this time, we are in the 21st century which shows that science is developing at a significant rate. The development in question certainly become a pioneer or driving force for the birth of new innovations from various sectors of life.

The IPA subject is one of the most important subjects to be taught in elementary school (SD). Science subjects can increase student activity in learning because as previously discussed, science subjects are closely related to everyday life. Thus, science does not only consist of a collection of knowledgein the form of facts or concepts of studying natural phenomena with a process of discovery. In accordance with this nature, science learning in elementary schools should be adapted to students cognitive abilities and learning is carried out through direct experience so that students understand more and students' memories will become stronger, because students carry out their own experiments using learning media contained in the surroundingenvironment.

The difficulty in classifying animals based on the type of food includes understanding vocabulary and the need for simple, accurate pictures or videos to make it easier for students to understand the material.

Causative factor the emergence of these problems can be seen in terms of science learning which is monotonous. That is science learning which is centered on teacher activities using the lecture method and learning habits that are less meaningful so that it becomes a habit that greatly influences the learning process and learning outcomes for students.

In the class, the learning process IPA is more emphasized on material mastery, memorization of material, so the learning atmosphere is rigid and unable to increase students interest in science lessons. Some time ago, the dominant learning process used books as a media which was considered to be very traditionalin this highly developed era. The use of books makes students seem passive and less interested in learning so that it has an impact on their learning outcomes. In this digital era, students and teachers can use PCs, laptops or tablets to support learning (Sembiring et al., 2018). Explaining material using picture media which is then pasted on the blackboard is also considered ineffective, constraints such as images thatare too small and also less attractive make students less able to understand the material properly (Lu & Maknun, 2018).

Children at the primary education level whose age range is around 7-12 years old synonymous with learning that is playful and fun. Therefore, it is important for us as educators to be able to develop interesting learning such as the use of interactive multimedia.

Interactive multimedia is one option that can make learning more interesting. Interactive multimedia presents a more colorful display and also attractive images to increase student interest in learning material. Interactive multimedia presents attractive images, text, sound and designs. It can also make students interactive in understanding the material.

Interactive multimedia in this study is a learning media made using genially with the subject of grouping animals based on their type offood, so that in the development of this media it is expected reciprocal relationship between students and the media. Genially is an application that can be used to create interactive multimedia which is certainly easy to use and can support the learning process in the classroom.

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THEORETICAL STUDY

1. Learning Media

Learning media can be interpreted as a device both in the form of software and in the form of hardware which aims to be able to increase effectiveness in the implementation of the teaching and learningprocess. Therefore, it is important to create an interesting learning media so that it will be able to attract the attention and interest of students in class (Artawan et al., 2018).

2. Interactive Multimedia

Multimedia can be defined as media that integrates at least two or more components, such as text, images,audio, video and animation that are interconnected. Interactive multimedia is defined as a combination of text, sound, graphics, animated characters as well video is synonymous with advantages for users in controlling the multimedia presented, so that later we can control it during interactive multimedia operations (Susilo et al., 2017).

3. Genially

The interactive multimedia that will be developed is designed using the Genially application. Genially is an application that assists it's users in producing several interactive media such as interactive learning media which contains presentations, pictures, sounds, attractive displays and can also present quizzes which are of course interesting to use in classroom learning. Genially also provides various options such as presentation, gamification,quizzes and others.

RESEARCH METHODS

This research is research developmentor Research and Development (R&D). R&D is a type of research that does not test a theory but produces a product (Anyan et al., 2021). The model used in this study is the Plomp model which has 3 phases, namely the preliminary research phase, development or prototyping phase and the assessment phase.

The test subjects in this study were 9 class V students at SDN 125 Pekanbaru and also 3 teachers or educators. Respondents will use interactive multimedia material for grouping animals based on the type of food they have eaten designed. The research instruments used inthis study were in the form of observation, interviews and also using a distributed questionnaire to the respondents with the aim of determining the practicality and validity of the interactive multimedia itself.

RESULT AND DISCUSSION

1. Preliminary Research Phase

a) Needs Analysis

Based on interviews,data was obtained that in the process of teaching and learning activities, the teacher used learning methods such as lectures, delivering material, giving several examples of questions and ending by giving several evaluation questions to measure student understanding.

In science subjects, learning materials group animals based on the type of food, students tend to have difficulty distinguishing and classifying the three groups of animals, in the learning process, this material is taught by mentioning the meaning and characteristics of the three groups of animals and looking at pictures animals in the book, and followed by a question and answer session between the teacher and students.

b) Curriculum Analysis

The curriculum currently used in SDN 125 Pekanbaru is the 2013 Curriculum (K13). Referring to the 2013 curriculum, of course the use of technology in the learning process is very much needed, but in fact on the ground that teachers have not been ableto fully utilize technology in the learning process in the classroom.

c) Analysis the characteristics of students

From the results of interviews conducted by researchers with students, information was obtained that the age of the

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students ranged from 10-12 years. Then, not all students like science subjects, because they feel the material is difficult and also less interesting. Students look very enthusiastic when researchers offer to use interactive multimedia in the learning process that they will do.

2. Development or Prototyping Phase

1) Product Design and Development

At this phase, researchers carry out the process of designing and developing interactive multimedia. Interactive multimedia was developed usinga genially application with a total of 108 slides. The writing in this media uses grandstander typeface with variations in size 10-75. To make this multimedia more interesting, the use of transitions and animation effects is also involved in each slide show. The components contained in this interactive multimedia are display instructions for use, menus, learning objectives, learning materials, games and quiz. The following details the results of the development of interactive multimedia:

a) Main View

b) Display Instructions for Use Media

c) Display Menu

d) Display of Learning Objectives

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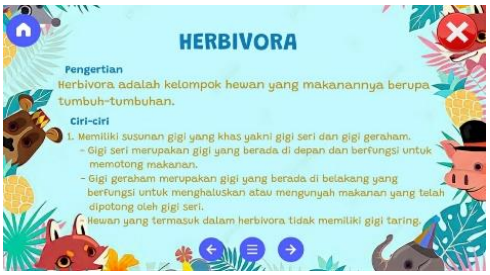
e) Display of Learning Materials



f) Game Display

g) Quiz Display

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2) Formative Evaluation

a) Self Evaluation

Self evaluation is carried out by researchers by independently assessing the media that has been made and asking for suggestions and input from research friends in assessing and also determining what components are appropriate for use in making products.

b) Expert Assessment

This validation process will be carried out by three experts consisting of material experts, media experts and language experts. The experts will later provide an assessment of the products that have been developed and provide suggestions input. This interactive multimedia product is validated 2 times. The results of product validation can be seen in table 1 below.

Table 1. Product Validation Results

No	Assessment Aspect	Percentage (%)	Category Validation
1.	Material	96,875%	Very Valid
2.	Media	91,07%	Very Valid
3.	Language	91,67%	Very Valid
	Average	**93,205%**	**Very Valid**

Interactive learning that was developed obtained a score of 93.205% with a very valid category. Based on the results of the validation carried out, the interactive learning media is developed can be used at the trial phase.

c) One to One Evaluation

One to one evaluation was carried out to 3 students of grade 5 who were randomly selected. At this phase it was carried out by testing interactive multimedia products on students and being observed directly by researchers. One to one evaluation was carried out by means of an interview process and the result was that the interactive multimedia material for classifying animals based on the type of food developed had a good and attractive appearance, the material presented in the media was interesting, easy to understand, students remembered the material more easily and also interactive multimedia make students more active and enthusiast while using it.

d) Small Group Trial

At this phase, it takes 6 students of grade 5 at SDN 125 Pekanbaru who are randomly selected. The small group trial activity was carried out by dividing students into two groups with each group containing 3 students. This activity was carried out on April 18, 2022.

At this phase a limited trial was carried out to obtain information regarding the practicality of the developed interactive learning media product. Apart from students, teachers are also involved in assessing the practicality of this interactive multimedia.

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3. Assessment Phase

Assessment phase are carried out with the aim of knowing the level of practicality of interactive multimedia that has been developed before. To find out the practicality of the product, a trial was carried out. There were two trials conducted, namely one-to-one evaluation trials and small group trials. A one to one evaluation trial was conducted to see the readability and clarity of the use of the interactive multimedia, while a small group trial was conducted with 6 grade 5 students at SDN 125 Pekanbaru who were randomly selected.

At the assessment phase, data is obtained by distributing practical questionnaires that will be filled out by teachers and students. Through the distribution of practicality questionnaires, it was later discovered that the developed interactive multimedia included valid and practical products for use in learning activities. The results of the analysis obtained from the teacher practicality questionnaire can beseen in table 2 below.

Table 2. Practical Result of Teacher

No	Aspect	Percentage	Category
1.	Attractiveness	100%	Very Practical
2.	Convenience Usage	88,33%	Very Practical
3.	Benefit	83,33%	Very Practical
	Average	**90,55%**	**Very Practical**

Practicality questionnaires were not only given to teachers, but also to students so that researchers could also find out the practicality level of learning media through student response questionnaires. The results of the questionnaire on the practicality of student responses can be seen in table 3 which is presented below.

Table 3. Practical Result of Student

No	Aspect	Percentage	Category
1.	Attractiveness	96,875%	Very Practical
2.	Convenience Usage	89,88%	Very Practical
3.	Benefit	90%	Very Practical
	Average	**92,25%**	**Very Practical**

Discussion

This research was use a type of Research and Development or known as (R&D). This type of research and development or Research and Development (R&D) has a meaning as a scientific method used to research, design, produce and evaluate the products that have been produced (Sugiyono, 2019). The model used in this study is the Plomp development model which includes three phases, the preliminary research phase, the development prototyping phase, and the assessment phase.

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In the development of the Plomp model, the first phase is the preliminary research phase, this phase is carried out by conducting needs analysis, curriculum analysis and student analysis. In every educational institution, students are the central component of creating good school conditions. This proves how important students are at school (Devianti et al., 2020).

Based on the results of the analysis from the researchers, it is knownthat the school has good facilities such as available laptops, infocus screens and projectors, but indeed during the learning process, teachers rarely use existing facilities in the learning process, this is also because there are still many teacherswho do not utilize technology in the learning process. They hope that young teachers will be born who are able to use technology well so that the learning process becomes more interesting for students.

As we are currently experiencing, changes in learning patterns are really needed as a form of adjustment to very rapid technological developments (Tekege et al., 2017). Furthermore, curriculum analysis, the curriculum used at SDN 125 Pekanbaru is the 2013 curriculum and teachers also students use thematic books to support learning in class. Then analyze the students carried out with the aim of identifying thecharacteristics of students including age, academic abilities, ways of learning, and students interests regarding colors, images and animation.

The next phase is the development or prototyping phase. Interactive multimedia developed by researchers uses genially applications which there are also various features such as transitions, hyperlinks, animations and other features. Media genially is a learning media that can be used to display presentation content about material or other things that you want to display. Genially can be accessed online, so to access it you only need a page or link from the genially media, and you don't need to move presentation data manually as usual. This can make it easier for students to gain access and access material in genially media throughtheir respective devices or laptops anywhere and anytime (Khoirun Ni'mah et al., 2022) The material used by researchers in making this interactive multimedia is grouping material Animals based on the type of food studied in classV SD, theme 5 ecosystems, sub-theme 1 ecosystem components, learning 2. The material taught outlines discusses typesof animal food, groups of carnivores, herbivores, omnivores along with their characteristics and examples. As for designing this genially based interactive multimedia , researchers made as manyas 108 slides.

After the interactive multimedia product has been developed, the researcher then do a formative evaluation, there are validation or assessment by experts, one to one evaluation and small group trials. Based on the results of the validation with the 3 validators, the researcher received a lot of constructive inputand suggestions so that the product could be better, so that the researcher made improvements to produce a better product. After making improvements based on the results of the first phase of validation, the researcher then conducted the second phase of validation with the validators.

As for the results of the second phase of validation, interactive multimedia obtained validation results in the material aspect with an average score of 96.875%, the media aspect obtained an average score of 91.07%, and the language aspect with an average score of 91.67% . So that overall interactive obtains an average score 93,205% with a very valid category. This shows that the developed interactive multimedia material for classifying animals based on their food type can be used for the next phase, namely the trial phase.

Then, a one to one evaluation phase was carried out with 3 students. The researcher asked 3 students to use interactive multimedia and interviewed students directly after using

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the product. At this phase there are no improvements made, because students are already able to use product well and also they are very enthusiasticabout using the interactive multimedia.

The final phase is the assessment phase. At this phase it is carried out to determine the level of practicality of interactive multimedia products that have been developed previously. This phase was carried out by carrying out a small group trial with 6 students of grade 5 at SDN 125 Pekanbaru. The uniqueness in the small group discussion learning method, learning materials or materials are found and organized by the students themselves (Saraswati & Djazari, 2018). This trial was also carried out with 3 teachers at SDN 125 Pekanbaru.

Previously, researchers had provided practicality questionnaires for teachers and students. The questionnaire was made by containing three aspects, namely aspects of attractiveness, ease of use and benefits. Based on the results obtained by distributing questionnaires to students, an average score of 92.25% was obtained in the very practical category, while based on the distribution of questionnaires conducted with the teacher, an overall average score of 90.55% was obtained in the very practical category.

Thus, the interactive multimedia product material for classifying animals based on the type of food has fulfilled the valid category and the practical category, so that it can be used by teachers and students in the learning process in class.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research and discussion that has been described, it can be concluded that interactive multimedia on grouping material animals based on the type of food in class V SD which was developed using a genially application with a total of 108 slides already get valid and practical criteria so that it can be used by teachers and students. The development of interactive multimedia can be said to be valid because it meets the criteria in three aspects, namely media, material and language aspects with an overall average score percentage of 93.205% in the very valid category, while for the percentage score the average teacher's response practicality is 90.55% and the practicality of the student's response was 92.25% in the very practical category.

Based on the research that has been done, the researcher proposes the following recommendations and suggestions:

a) In this research, the researcher hopes that this interactive multimedia can become one of the reference in developing interactive multimedia, and also hoped that future researchers will be able to make better use of the genially application such as maximizing the features presented in the genially application such as upgrading to premium to enjoy all of its features.
b) In this research, researchers only conducted small-scale trials, so it is hoped that future researchers will be able to conduct large-scale trials.
c) The interactive multimedia that the researcher has developed only meets valid and practical criteria, and has not yet entered the effective criteria.

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