

DEVELOPMENT OF DAKON GAME INTERACTIVE EBOOK MEDIA ON MATHEMATICS LEARNING FOR ELEMENTARY SCHOOL STUDENTS

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Abstract: The low student learning outcomes in the concept of learning addition and subtraction in learning Mathematics, especially for grade 1 in Elementary School, is still not optimal. This is one of the contributing factors is the lack of mathematics learning materials developed by the teachers, and not many teachers involve students in the learning process so that students are less active in responding to the ongoing Mathematics learning. This study is intended to design learning media that can improve student learning outcomes in learning Mathematics through the development of interactive e-book media for the Dakon game. The formulation of this problem is how is the process of developing the Dakon Game Interactive E-Book Media to Improve Mathematics Learning Outcomes of Elementary School Students and How is the feasibility of developing Dakon Game Interactive E-Book Media to Improve Mathematics Learning Outcomes of Elementary School Students, this study uses the R&D development method only at level 1 with the stages of collecting potentials and problems, literature study and information gathering, product design, design validation, and tested design. With the results of the linguist validation test, the percentage of eligibility of 85% was declared very feasible to use, then the material validation test with a feasibility percentage of 83% was also declared very feasible to use, and the last one was the empirical scale test with a feasibility percentage of 86% indicating that the e-book media Dakon student interactive game is very feasible to use.

Keywords— Learning Outcomes, Development, Mathematics, Dakon, E-Book

Abstrak: Rendahnya hasil belajar siswa dalam konsep pembelajaran penjumlahan dan pengurangan pada pembelajaran Matematika khususnya untuk kelas 1 di Sekolah Dasar masih kurang optimal. Hal ini salah satu faktor penyebabnya adalah kurangnya materi pembelajaran matematika yang dikembangkan oleh para guru, serta tidak banyak guru melibatkan siswa dalam proses pembelajaran sehingga siswa kurang aktif dalam menanggapi pembelajaran Matematika yang berlangsung. Penelitian ini dimaksudkan untuk merancang media pembelajaran yang dapat meningkatkan hasil belajar siswa dalam pembelajaran Matematika melalui media pengembangan *e-book* interaktif permainan dakon. Rumusan masalah ini adalah bagaimana Bagaimana proses pengembangan Media *E-Book* Interaktif permainan Dakon Untuk Meningkatkan Hasil Belajar Matematika Siswa Sekolah Dasar dan Bagaimana kelayakan pengembangan Media *E-Book* Interaktif Permainan Dakon Untuk Meningkatkan Hasil Belajar Matematika Siswa Sekolah Dasar, penelitian ini menggunakan metode pengembangan R&D hanya pada level 1 dengan tahapan pengumpulan potensi dan masalah, studi literatur dan pengumpulan informasi, desain produk, validasi desain, dan desain teruji. Dengan hasil uji validasi ahli bahasa presentase kelayakan 85% dinyatakan sangat layak untuk digunakan, kemudian uji validasi materi dengan presentase kelayakan 83% juga dinyatakan sangat layak digunakan, dan yang terakhir adalah uji skala empiris dengan presentase kelayakan sebesar 86% menandakan bahwa media *e-book* interaktif siswa permainan dakon sangat layak untuk digunakan.

Kata Kunci— Hasil Belajar, Pengembangan, Matematika, Dakon, *E-Book*

INTRODUCTION

The use of media in the teaching process should be a part that must receive attention from the teacher as a facilitator in every learning activity. Therefore, every educator needs to learn how to choose and determine learning media so that the achievement of learning objectives in the teaching and learning process optimally. Submission of information occurs in the learning process, so that the objectives or material can be conveyed, it is necessary to use tools. These information conveying tools are called learning media. Media is able to generate motivation, student interest, media can also help students improve understanding and learning outcomes, present interesting, reliable data, facilitate data interpretation, and condense information. For this reason, it is necessary to select learning media that are in accordance with the material to be taught, because student interest in learning in the learning process is one indication of the delivery of information and the success of instructional objectives in the learning process (Tofano, 2018).

The most basic problem that students complain about is that students feel bored and bored with the class process because student activities are only limited to listening to explanations from the teacher without playing an active role in the learning process. This is indicated by evidence from the results of the research on November 7, 2020, namely: The problems that the author can observe during PPL Real activities and from the results of discussions with fellow elementary school teacher education students who are taking PPL-Real where it is known that some students in the class do not pay attention Mathematics lessons given by the teacher, the low student learning outcomes because students do not take an active role in the learning process in the classroom when the teacher explains the Mathematics subject matter. During the learning process in class, students are silent and pay less attention to the teacher, even when online learning (zoom) students always turn off the camera and are less communicative when the learning process is carried out. The students' low understanding of the concepts of the Mathematics subject matter being taught, when the teacher delivered the material and most students did not fully understand the material that had been taught. This is evidenced by the low student learning outcomes in Mathematics. The teacher does not involve students much in the learning process, for example during the learning process, students listen more to the teacher explaining and students are less active in responding to questions from the teacher.

Based on the results of preliminary research conducted on November 7, 2020, researchers conducted interviews with 5 first grade students at SDN Celep Sidoarjo. Based on these interviews, information was obtained that the first grade students of SDN Celep Sidoarjo had difficulties in understanding mathematical reasoning. Mathematics material that is considered difficult and shows that the teacher is less communicative in delivering mathematics subject matter. One of the students said, "Mathematics is difficult". Other students also said that the teacher only explained the material through the blackboard and books, then worked on the questions and did not use media or games in learning. Students say that when the teacher uses media or games in learning, students will feel more interested and enthusiastic when learning. Based on the description above, researchers should try to help improve student learning outcomes in mathematics. One way that can be done is by using learning media that can motivate student learning so that with or without being asked students automatically want to learn so that they can improve student learning outcomes.

The media developed is the basis of a traditional game, namely the Dakon game, in the era of 2000 and below this game was very popular with children, but with the passage of time and the rapid development of technology this game is rarely played because it has been displaced by gadgets. Iswinartri, explained that traditional games are games that provide benefits for the development of children who have the wealth of the nation and cultural reflections such as dakon, engklek, jumping rope, catfish patil, marbles, and so on. One of the learning media that supports and is in great demand today is e-books. According to The Oxford Dictionary of English: "an e-book is an electronic version of a printed book, but e-books can exist without being printed out, and e-books are usually read on a special device called an e-book reader. PCs and some cellular

phones can also be used to read e-books” in short e-books are digital versions of a book. (D. Haris, 2001). So that without forgetting the nation's wealth is also not left behind in the era of digitalization, researchers are trying to develop interactive learning media that combines the two concepts with the research title "Development of Interactive E-Book Media, Dakon Games To Improve Mathematics Learning Outcomes for Elementary School Students".

Mahnun (2012) states that "media" comes from the Latin "medium" which means "intermediary" or "introduction". According to (Kompri: 2017) that "media" comes from the Latin "medium" which means "intermediary" or "introduction". Furthermore, the media is a means of channeling messages or learning information to be conveyed by the message source to the target or recipient of the message and the use of media can also help achieve learning success. AECT (Association of Education and Communication Technology) quoted by (Basyaruddin: 2002) "media are all forms used for the process of distributing information". Meanwhile, according to (Adam 2015) that learning media are everything both physical and technical in the learning process that can help teachers to make it easier to convey subject matter to students so as to facilitate the achievement of learning objectives that have been formulated.

The benefits of learning media according to Arsyad (in Kompri, 2017: 87) are as follows: 1) The delivery of lessons becomes more standardized and directed, 2) Lessons can be more innovative, effective and interesting, 3) Learning becomes more interactive between teachers, students, and all who participate in the teaching and learning process, 4) learning time can be shortened in an appropriate and practical way, 5) the quality of learning outcomes can be developed, even improved, 6) learning can be given or used whenever and wherever the teaching and learning process takes place, 7) The positive attitude of students can be increased towards genuine learning, without boredom and laziness, 8) The role of the teacher in changing in a more positive direction, both for students and for the teacher himself. The benefits described above can be concluded, that everything in the form of tools or other teaching materials must have a positive value if they are able to apply them properly and correctly.

According to Ekawarna (in Nafiah, 2013:70) learning outcomes are changes in student behavior, which can be observed and measured in the form of changes in knowledge, attitudes and skills. Learning outcomes are usually expressed in the form of numbers, letters or words good, moderate, lacking and so on.

Based on the description above, learning outcomes are changes in individual behavior that include three aspects, namely cognitive, affective, and psychomotor. Learning outcomes are also a change in behavior from not being able to being able and from not knowing to knowing. Learning outcomes in this study focused on learning outcomes in the form of cognitive. Cognitive learning outcomes can be measured through tests and can be seen from the scores obtained. In this study, learning outcomes are devoted to the level of knowledge (C1) to the level of analysis (C4). Cognitive learning outcomes are related to the mastery of the material that has been taught by the teacher during the learning process which is measured through learning outcomes tests and the value is in the form of numbers relating to the cognitive domains C1 to C4.

METHODS

This research on the development of interactive e-book media for the Dakon game to improve mathematics learning outcomes for elementary school students uses a Research and Development design. Borg and Gall (in Sugiyono, 2015, p. 28) suggest that "research and development is a process/method used to validate and develop products." Sugiyono (2015, p. 32) suggests that development research has 4 levels of difficulty, namely "researching without making and testing products, without researching only testing existing products, researching and developing existing products, researching and creating new products."

Researchers use research and development at a low level, namely level 1 where researchers conduct research to produce designs, but do not proceed with making products and testing them because the development of learning media templates created by researchers is a product that already has software for its manufacture, namely e-software. books.

The author uses research and development procedures at level 1 which is the lowest level. According to Sugiyono (2015, pp. 40-42), development research has the lowest position:

Doing research but not continuing with making products and not doing field testing. In this case, the research carried out only produces product designs, and the designs are validated internally (opinions of experts and practitioners) but are not produced or tested externally (field testing).

Validation Stage

The validation stages in this study were carried out by linguists and media experts, who acted as validators of linguists to validate the language structure and learning materials, then those who acted as validators of media experts validated the learning media templates as a means of media in learning Mathematics for Grade I Elementary School. The first validator in this research is Dr. Syamsul Ghufron, M.Si, then who acted as the second validator was Mr. Dr. Thamrin Hidayat, these two validators are experts in their respective fields who are also lecturers of Elementary School Teacher Education (PGSD) Faculty of Teacher Training and Education, Nahdlatul Ulama University Surabaya and twenty Class 1 teachers as an empirical scale test.

The subjects in this study were learning media templates, while the objects in this study were material aspects, linguistic aspects, presentation aspects and visual-communication aspects contained in the learning media templates.

Data Collection strategies

The author uses research and development procedures at level 1 which is the lowest level. According to Sugiyono (2015, pp. 40-42), development research has the lowest position: Doing research but not continuing with making products and not doing field testing. In this case, the research carried out only produces product designs, and the designs are validated internally (opinions of experts and practitioners) but are not produced or tested externally (field testing).

The steps used in this study are described as follows: 1) Potentials and Problems: The identification stage of potentials and problems is carried out by direct observation of the learning media used in the implementation of learning which was followed by researchers in PPL activities in 2020, 2) Study Literature and Information Gathering: Information collection and literature study is carried out by conducting a literature review on learning, learning media and e-books to learn the theoretical foundations that underlie the development of learning media templates as a learning tool for the development of interactive e-book media to be made. , 3) Product Design: Making product designs for making learning media includes the preparation of outlines and development of e-book software learning media templates, 4) Design Validation: Product design validation is carried out by media experts to assess the feasibility of product designs. At this stage, media experts are asked to provide assessments and suggestions for improvements to the product design for improvement by researchers. Aspects to be assessed are material aspects, linguistic aspects, learning aspects, 5) Tested Design: This stage is the last stage in this research procedure where the product design has become an internally tested design but is not made into a product and field testing is carried out.

Data Analysis strategies

Data analysis on the feasibility of the learning media template was determined based on the results of validation carried out by linguists and media experts who were experienced in their fields using a validation sheet with three possible results, namely very suitable for use, suitable for use with revisions and not yet suitable for use. Data analysis was carried out by presenting the media rating based on the value given by media experts into a feasibility score. Arifin (2012, p. 232) suggests the formula used to calculate the feasibility score is as follows:

$$\text{Skor Kelayakan} = \frac{\sum x}{\sum s} \times 100\%$$

Description: $\sum x$ = score obtained
 $\sum s$ = maximum score

The results of the analysis regarding the making of learning media templates from media experts as expert judgments in this study are interpreted into three categories of assessment as described in Tabel 3.1.

Table 3.1 Table of Media Feasibility Interpretation

Score Range (x)	Rating Category	Interpretation
$77,6\% < x \leq 100\%$	Very Worth Using	Linguists and media experts stated that each aspect of the assessment in the e-book learning media was feasible to use.
$55\% < x \leq 77,6\%$	Worth Using After Repair	Linguists and media experts stated that the aspects of each assessment in the e-book learning media were feasible after several improvements were made according to the input provided by the experts.
$33,3\% \leq x \leq 55,5\%$	Not Eligible	Experts state that learning media is not suitable for use as learning media because there are still many shortcomings in the media made and many improvements are needed.

RESULTS AND DISCUSSIONS

Dakon Game Interactive *E-Book* Development Process to Improve Primary School Student Learning Outcomes

This research and development aims to produce interactive learning media based on the Dakon game e-book with material in KD 3.4 "Explaining and doing addition and subtraction of numbers involving whole numbers up to 99 in everyday life and relating addition" which only comes to the material explaining and doing additions involving whole numbers up to 99 in daily life and knowing the feasibility of interactive learning media based on the Dakon game e-book. The developed learning media is declared suitable for use based on validation by linguists, media expert validation, and empirical test results, who act as linguist validators will validate language structures and learning materials, then those who act as media expert validators will validate learning media templates as media facilities in learning Mathematics Class I SD. The first validator in this research is Dr. Syamsul Ghufron, M.Si, then who acted as the second validator was Mr. Dr. Thamrin Hidayat, these two validators are experts in their respective fields who are also lecturers of Elementary School Teacher Education (PGSD) Faculty of Teacher Training and Education, Nahdlatul Ulama University Surabaya and twenty Class 1 teachers as an empirical scale test.

This development research refers to the development model at level 1 according to Sugiyono (2016: 40-50), namely: Researchers conduct research to produce product designs to test their validity, but do not proceed with testing their effectiveness. In this case the research was conducted to examine the problem, its causes, review the latest and relevant literature and overcome the problems according to the cause, collect information so as to produce a product design and conduct product validation tests internally. Research produces data that is valid, reliable, up to date, objective, and complete, and then used to design a product, which is limited to a few stages. These stages include: a) the stage of gathering potential and problems; b) the stage of literature study and information gathering; c) product design stage; d) design validation stage; and e) tested design stage.

Feasibility of Development of Interactive E-Book Media Perminan Dakon to Improve Mathematics Learning Outcomes of Elementary School Students Potential and Problem Gathering Stage

This stage begins with identifying potentials and problems carried out by direct observation of the learning media used in the implementation of learning which is followed by researchers in PPL activities in 2020, the results of the identification show that the low learning outcomes of

class I students in mathematics subject matter addition and the reduction is also caused by the lack of innovation in the learning process in the classroom. Based on these stages, the material that will be developed in an e-book-based interactive learning media is obtained, namely the Dakon game. After the material developed has been determined, the next step is to conduct a literature study and collect information to collect material for KD 3.4.

Literature Study and Information Gathering Stage

This second stage is carried out by conducting a literature review on learning that will be used by researchers in developing media that are in accordance with the selected KD where researchers take KD 3.4 with the limitations described in chapter 3, learning media and e-books to learn theoretical foundations. which underlies the development of learning media templates as a learning tool for the development of interactive e-book media to be made, where researchers choose learning media in the form of e-book media to facilitate access to learning that can be seen and studied by students only from devices, laptops or tabs. Based on these stages, literature and information were obtained that would be developed in an e-book-based interactive learning media, namely the Dakon game. After the study of literature and information is found, the next step is to carry out the product design stage.

Product Design Stage

This third stage consists of designing interactive learning media products based on the Dakon game e-book. The steps taken are; 1) Create storyboards. The story board is made with the aim of making it easier to make media and to determine the next stage of development, so that parts of the learning media can be arranged properly. Story boards are made by writing down the contents of the story, determining the pictures in the book, the characters in the story by drawing sketches on paper, the finished sketches are then redrawn using a computer. The story board used in this study can be seen in Figure 4.1

Kisi-kisi		
KD. 3. Memahami pengetahuan faktual dengan cara mengamati (mendengar, melihat, membaca) dan melakukan kegiatan matematis untuk mengenal sifat bilangan bulat, mendeskripsikan kejadian dan hubungan yang terdapat antar bilangan bulat, dan memahami sifat-sifat operasi hitung pada himpunan bilangan bulat.		
KD. 3.4. Menjabarkan dan melakukan operasi hitung dengan menggunakan bilangan bulat yang melibatkan himpunan yang ada pada operasi hitung PP. dan melakukan estimasi hasil serta menggunakan pengetahuan		
Tema Cerita		Gambar
1. Cerita dan judul	Kisah Momen dan Momen dalam dunia dan bilangan bulat di rumah dan di sekolah	
2. Momen yang akan yang akan terjadi sebelum kegiatan berlangsung	Momen ketika di berangkat	
3. Pada saat itu akan ada apa saja yang akan terjadi dan apa saja yang akan terjadi	Sebelum akan ada yang sedang berlangsung di rumah dan di sekolah, ada yang akan terjadi dan di rumah	
4. Ketika akan ada apa saja yang akan terjadi dan apa saja yang akan terjadi	Sebelum akan ada yang sedang berlangsung di rumah dan di sekolah, ada yang akan terjadi dan di rumah	
5. Ketika akan ada apa saja yang akan terjadi dan apa saja yang akan terjadi	Sebelum akan ada yang sedang berlangsung di rumah dan di sekolah, ada yang akan terjadi dan di rumah	
6. Ketika akan ada apa saja yang akan terjadi dan apa saja yang akan terjadi	Sebelum akan ada yang sedang berlangsung di rumah dan di sekolah, ada yang akan terjadi dan di rumah	
7. Ketika akan ada apa saja yang akan terjadi dan apa saja yang akan terjadi	Sebelum akan ada yang sedang berlangsung di rumah dan di sekolah, ada yang akan terjadi dan di rumah	
8. Ketika akan ada apa saja yang akan terjadi dan apa saja yang akan terjadi	Sebelum akan ada yang sedang berlangsung di rumah dan di sekolah, ada yang akan terjadi dan di rumah	
9. Ketika akan ada apa saja yang akan terjadi dan apa saja yang akan terjadi	Sebelum akan ada yang sedang berlangsung di rumah dan di sekolah, ada yang akan terjadi dan di rumah	

16. "Momen apakah benar jika jumlah biji dalam di dikurangi hasilnya ada 7?" tanya Mega ke Momen	Momen kecil kecil yang diajak untuk menjelaskan jumlah biji dakonya Gambar Mega dan Momen bermain dakon dan di dikurangi. Momen tanya jumlah biji dalam dengan waktu kurang yang bisa di hitung 1, 2, dan Kemudian ada kata kata "Yak bantu Mega menghitung"
17. "Benar sekali Mega, sekarang coba ambil beberapa biji lagi yang ada dalam dengan biji dalam ini yuk" ajak Momen kepada Mega	Pada gambar kali ini, Momen memperlihatkan untuk membuat gambar, banyak, dan dengan menggunakan gambar biji dalam sesuai dengan jawabannya seperti ini:

Picture 4.1 Story Contents Interactive e-book Dakon Games

2) *The story board* is then used as a reference for making layouts. Layout is made by paying attention to aspects of color and composition. Color is a spectrum contained in perfect light or is also a reflection of certain light influenced by pigments, Supriyono (2010: 70) argues that color is one of the visual elements that can easily attract the attention of readers. In designing this illustration book, the researcher uses a palette of primary and secondary colors, and has a bright children's color base, in this case the selection of color and composition aspects can be seen in Figure 4.2.



Picture 4.2 Color Pallete Example (designworklife.com)

Then the layout is one of the most important parts in planning to create an interactive e-book book Dakon game, Layout according to Rustan (2014), is a layout of design elements to a field in a particular media to support a message or concept that is brought. The importance of a layout in planning a book is to make the display more communicative and can support the arrangement of a text and images to make it easier for the audience and readers to capture the information in the book, the arrangement in a book content will be conceptualized neatly and harmoniously. The details regarding the size and pages of the book are as follows:

Table 4.1 Detailed layout

No	Name	Description
1.	Book Type	Ilustration Book
2.	Book Size	21 cm x 29,7 cm
3.	Number of Pages	20 sheet
4.	Book Media	<i>e-book</i>

1) The finished layout is then filled with mathematical material in accordance with KD 3.4. The material in the interactive learning media based on this math game e-book consists of three sub-materials, namely, addition, subtraction, and involving whole numbers up to 99 in everyday life and relating addition. At this stage the researchers carried out several processes including:

a) Typography

This book uses the crayon kids font for the content, because this font is easy to read and not too thick. Then in the Title section using the Dk Prince font, this font has an upright and easy to read shape



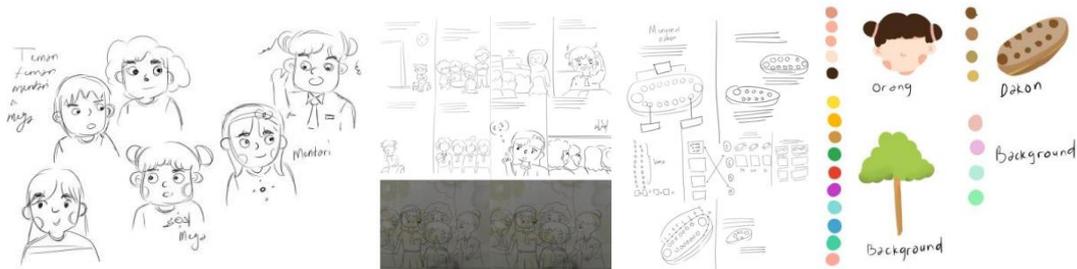
Picture 4.3 Font Badaga (Fontriver.com)

a) Illustration Style

The illustration style in making this Dakon game interactive e-book is a cartoon illustration style, because the cartoon style is a type of illustration that presents events in an entertaining image style, cartoons themselves are usually used in children's reading books, children's comics and children's learning books. .

b) Design Process

In this design process, the writer starts the process by sketching the characters of the story first.



Picture 4.5 Character Sketch (authors documentation)

Then make a sketch of the story from pages 1 to 11 and place the dialogue or part of the story. Next is the sketching of practice questions and the introduction of the dakon game on pages 12 to 20.

a) Visualization of Final Works

Front Cover Page Design to Back Cover



Picture 4.20 E-Book View (Author's Documentation)

On this page there is an e-book display that can be accessed via the link <https://online.flippingbook.com/view/431114325/> which can be opened via a smartphone, laptop or tab, how to use it is easy just by sliding the image right to left, or you can directly click the arrow on the right to continue to the next slide and the left arrow to return to the previous slide. After the step of writing the material, the media is then given videos and pictures that can support the material. In addition, it is also equipped with a deepening of the material presented in the interactive learning media, the e-book, the Dakon game.



Figure 4.21 Display of E-Books with Additional Learning Opening Videos (Author's Documentation)

Then also the making of a grid of research instruments which are the criteria for assessing interactive learning media. The finished instrument grid was then developed into a research instrument. The research instrument that will be used is a validation sheet which we will provide via the google form link. The validation sheet is used to determine the feasibility of interactive learning media based on the Dakon game e-book based on the assessment of linguists, media experts and learning experts. Linguists provide assessments based on material, learning, and linguistic aspects while media experts provide assessments based on media and display feasibility aspects, and learning experts provide assessments based on learning suitability. The first validator in this research is Dr. Syamsul Ghufon, M.Si, then who acted as the second validator was Mr. Dr. Thamrin Hidayat, these two validators are experts in their respective fields who are also lecturers of Elementary School Teacher Education (PGSD) Faculty of Teacher Training and Education, Nahdlatul Ulama University Surabaya and twenty Class 1 teachers as an empirical scale test. Instrument validation is carried out by the supervisor.

a. Design Validation Stage

The design validation phase is carried out so that the developed interactive learning media can be known for its feasibility based on the assessment of linguists, material experts and empirical scale tests. Validation of interactive learning media is carried out by: 1) linguists who are competent in the field of human interaction in the material aspect; 2) competent media experts in the field of e-book-based interactive learning media; 3) learning experts who are competent in the suitability of the learning process. The assessment data on the results of the validation of linguists is presented in table 4.2, while the data on the assessment results of the validation of media experts is presented in table 4.3, and the assessment data on the results of the empirical scale test are presented in table 4.4. Media products that have been validated are then revised according to expert advice and input during the validation process. .

b. Language Validation Results

Before conducting the trial, the interactive learning media based on the Dakon game e-book that was developed was validated by linguists. Language validation was carried out by Dr. Syamsul Ghufon, M.Si as a lecturer at the Faculty of Teacher Training and Education, Nahdlatul Ulama University Surabaya who has a background according to the language developed. Validation by linguists aims to obtain information, criticism, and suggestions so that interactive learning media based on the Dakon game e-book developed into quality products in linguistic aspects. The results of the validation can be seen in table 4.2. The maximum score for each statement item in the validation sheet is 4 while the minimum score is 1.

Table 4.2 Linguistic Expert Validation Results

No	Aspect	Indicator	Score
1	Language	The language used is in accordance with the language rules or EYD	3
2		The suitability of language with students' thinking level	4
3		The language used is easy to understand	3
4		The language used is consistent	3
5		Simple language	3
6		Accuracy of terms	4
7		The use of language does not lead to multiple interpretations	3
8		Use of communicative language	3
9		The font size on the media is clear and legible	4
10		Ability to arouse students' curiosity	4
Total			34
Interval Score			$77,6\% < x \leq 100\%$
Average Score			85%
Category			Very Worth Using

Source: Processed Primary Data

The results of the validation of linguists show the total score of 34 with a feasibility percentage of 85% in the table so that it is included in the "**Very Appropriate Use**" category.

c. Media Expert Validation Results

Before conducting the trial, the interactive learning media based on the Dakon game e-book that was developed was also validated by media experts. Media validation was carried out by Dr. Muhammad Thamrin Hidayat as a lecturer at the Faculty of Teacher Training and Education, Nahdlatul Ulama University Surabaya who has a background according to the media developed. Validation by media experts aims to obtain information, criticism, and suggestions so that interactive learning media based on the Dakon game e-book are developed into quality products in terms of material presentation aspects on media, learning media criteria, and media display. The results of the validation can be seen in table 4.3. The maximum score for each statement item in the validation sheet is 4 while the minimum score is 1.

Table 4.3 Media Expert Validation Results

No	Aspect	Indicator	Score
1	Presentation of Material on Media	Presentation of material according to KI, KD	3
2		Presentation of material in accordance with learning objectives	4
3		Presentation of material in the media is easy to understand	3
4	Learning Media Criteria	Used as an alternative learning media	3
5		Display in interesting media	3
6		Easy to operate and safe to use	4
7		Simple and easy to use	4
8	Media Display	Attractive design	4
9		The writing is clear and easy to read	3
10		The picture in the e-book media is clear	3
11		Image selection accuracy	3
12		Selection of e-book media	3
Total			40
Interval Score			77,6% < x ≤ 100%
Average Score			83%
Category			Very Worth Using

Source: Processed Primary Data

The results of media expert validation show the total score of 40 with a percentage of 83%, with the category "Very Appropriate to Use". On the validation of linguists and media experts show the results of the total score with the category "Very Appropriate to Use". Based on the validation results, it can be concluded that the interactive learning media based on the Dakon game e-book developed has developed good quality. This can be proven by Chart 4.1

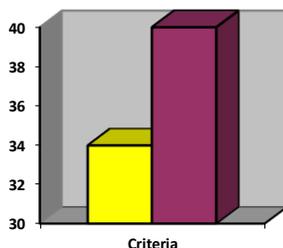


Chart 4.1 Linguistics and Media Expert Validation Results

The results of the validation of linguists and media experts show the results of the number of different scores where the linguist is 34 with a percentage of 85%, with the category "Very Appropriate to Use". Meanwhile, media experts are 40 with a percentage of 83%, with the category "Very Appropriate to Use". Based on the validation results, it can be concluded that the

interactive learning media based on the Dakon game e-book that was developed can be said to be suitable for use.

Product Development Results

This research is a type of research and development. The result of this research and development is an interactive learning media product based on the Dakon game e-book with material in KD 3.4. There are several problems behind the development of media in this study. These problems include: a. class teaching is not yet optimal, it is still limited to certain teaching methods; b. lack of ability and willingness of teachers in developing learning media, especially e-book-based interactive learning media; c. not yet varied use of learning media in learning activities; and D. there are not many media with addition and subtraction material using dakon games that meet the eligibility for use in learning. This research and development is carried out with reference to the stages of research and development according to Borg and Gall (1983: 775) explaining that there are ten stages in research and development, but in this research and development the ten steps are simplified into five steps, (in Sugiyono, 2015, p. 28) suggests that "research and development is a process/method used to validate and develop products." Sugiyono (2015, p. 32) suggests that development research has 4 levels of difficulty, namely "researching without making and testing products, without researching only testing existing products, researching and developing existing products, researching and creating new products." . The factors that underlie researchers using research and development at a low level, namely level 1, are: a) Time Limitations: If this research and development is carried out in ten stages, it will require a relatively long and long process and time. Therefore, through simplification into five stages of research and development, this research and development is completed in a shorter time but remains efficient and effective in the process and results. b) Cost Limitations: Relatively large costs will be required if the research is carried out in ten stages. Therefore, by simplifying the stages of this research, it can be completed at a relatively affordable cost. c) Similarity of Stages: Based on the ten stages of research and development of the Borg & Gall model, there are several stages that have a common goal. These similarities can be seen in several stages, such as the preliminary field testing stage, the main field testing stage, and the operational field testing stage. The similarities in several stages of the trial made the researchers simplify into one trial stage, namely after the revision of stage I. The similarity of objectives was also seen at the stage of product revision so that the researchers simplified into one stage of product revision, namely after the product was validated.

Validation Result

The calculation of the average score of the data obtained aims to determine the feasibility of interactive learning media based on e-books Dakon games for learning Mathematics in Elementary School Class I. The validation results obtained are compared with the categories according to Eko Putro W (2009: 238), as attached in table 5.

Linguist Validation Results

There are 10 statements in the linguist validation sheet. Linguists perform validation once. The measurement scale used is a Likert Scale with 4 scales with categories, Strongly Agree (A) = 4, Agree (B) = 3, Disagree (C) = 2, Strongly Disagree (D) = 1. After testing, repairs are made according to with expert advice. The results of the assessment of linguists as shown in table 4.6.

Table 4.6. Conversion of Linguist Validation Score

Score Range	Rating Category	Interpretation
$77,6\% < x \leq 100\%$	Very Worth Using	The expert stated that the language in the learning media template was feasible to use.
$55\% < x \leq 77,6\%$	Worth Using After Repair	The expert stated that the language in the learning media template was feasible to use after several improvements were

Score Range	Rating Category	Interpretation
		made according to the input given by the media expert.
$33,3\% \leq x \leq 55,5\%$	Not Eligible	The expert stated that the language in the learning media template was not suitable for use as a learning medium because there were still many shortcomings in the media created and many improvements were needed.

Source: Processed Primary Data

Media validation by linguists was carried out once. Validation by linguists aims to make interactive learning media products based on the Dakon game e-book developed into quality products in terms of linguistic aspects. Based on the results of the linguist's assessment with a total score of 34, while the expected score is 40, the percentage of eligibility is calculated using the Feasibility Percentage formula in CHAPTER III. So, the results of the feasibility of the material on the learning media are 85% which in the table is included in the Very Eligible category for use.

Media Expert Validation Results

Analysis of data from learning media was tested for feasibility by media experts consisting of two examiners who were lecturers at the Faculty of Teacher Training and Education, Nahdlatul Ulama University, Surabaya. Analysis of this instrument is used to determine the feasibility of learning media there are 3 aspects which include: 1) presentation of material on the media, 2) criteria for learning media, 3) media display. The measurement scale used is a Likert scale with 4 scales with categories, Strongly Agree (A) = 5, Agree (B) = 4, Disagree (C) = 2, Strongly Disagree (D) = 1. After testing, repairs are made according to with expert advice. The results of the assessment of media experts as in 4.7

Table 4.7. Media Expert Validation Score Conversion

Score Range	Rating Category	Interpretation
$77,6\% < x \leq 100\%$	Very Worth Using	Media experts stated that the learning media template was feasible to use.
$55\% < x \leq 77,6\%$	Worth Using After Repair	The media expert stated that the learning media template was feasible to use after several improvements were made according to the input provided by the media expert.
$33,3\% \leq x \leq 55,5\%$	Not Eligible	Media experts stated that the learning media template was not suitable for use as a learning medium because there were still many shortcomings in the media created and many improvements were needed.

Source: Processed Primary Data

Based on the results of the assessment of media experts with a total score of 40, while the expected score is 48, the percentage of eligibility is calculated using the Eligibility Percentage formula in CHAPTER III. The result of the feasibility of learning media is 83% which in the table is included in the Eligible for use category.

b. Opinion

Analysis of data from learning media was tested for feasibility by learning experts consisting of twenty class I teachers. Analysis of this instrument was used to determine the feasibility of learning media, there were 4 aspects which included: 1) learning media, 2) curriculum, 3) content of the material. , 4) Feedback Interaction. The measurement scale used is a Likert scale with 4 scales with categories, Strongly Agree (A) = 5, Agree (B) = 4, Disagree (C) = 2, Strongly Disagree (D) = 1. After testing, repairs are made according to with expert advice. The results of the assessment of media experts are as shown in Table 4.8

Table 4.8 Conversion of Empirical Scale Test Validation Score

Score Range	Rating Category	Interpretation
$77,6\% < x \leq 100\%$	Very Worth Using	The teacher stated that the learning media template was feasible to use.
$55\% < x \leq 77,6\%$	Worth Using After Repair	The teacher stated that the learning media template was feasible to use after several improvements were made according to the input given by the media expert.
$33,3\% \leq x \leq 55,5\%$	Not Eligible	The teacher stated that the learning media template was not suitable for use as a learning medium because there were still many shortcomings in the media made and many improvements were needed.

Source: Processed Primary Data

Based on the results of the assessment of linguists with a total score of 20 first grade teachers worth 690, while the expected score is 800, the percentage of eligibility is calculated using the Eligibility Percentage formula in Chapter III. The result of the feasibility of learning media is 86% which in the table is included in the Very Eligible For Use category.

CONCLUSION

This research is included in the type of research and development (R&D) or uses research and development methods. Researchers use research and development at a low level, namely level 1 where researchers conduct research to produce designs, but do not proceed with making products and testing them because the development of learning media templates created by researchers is a product that already has software for its manufacture, namely e-software. books. 1) How to make the development of interactive e-book learning media for the Dakon game through the stages of making learning media starting from (1) the potential and problem collection stages, (2) the literature study and information collection stages, (3) the product design stage, (4) the design validation stage, and (5) the tested design stage, 2) the feasibility validation of the interactive e-book learning media of the Dakon game carried out by linguists and media experts. The media worthiness score from linguist lecturers got a percentage of 85%, while media expert lecturers got a percentage of 83%, all of which belonged to the very feasible category to use. 3) The assessment of 20 first grade elementary school teachers regarding the interactive e-book learning media of the Dakon game got 86% which was categorized as very feasible to use. This indicates that the learning media that has been made can be declared feasible to use. This can be seen from the validation tests of linguists and media experts as well as empirical scale tests whose results at the score interval indicate that the media can be said to be very feasible to use.

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