Development of Kosbarab Learning Media to Improve Arabic Vocabulary Mastery of Elementary Level Students Based on Android Construct 2

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Abstract
In this current metaverse era, Arabic learning containing mufradat has not applied construct 2 media in the learning process so far. When viewed from the media, it will certainly match to the current metaverse era, and its application is also accessible. This study aims to design an Arabic vocabulary learning medium and to determine the feasibility of developing an android-based KOSBARAB learning medium to be applied in Arabic subject for 5D MI Bahrul’ Ulum Tambakberas Jombang students. The research method used is Research and Development (R&D) with a development model from Borg and Gall, which consists of 10 stages. Research instruments include observation, interviews, questionnaires, and trials. Data from experts’ and respondents’ questionnaires were examined using assessment indicators. The study results in 1) the success of developing KOSBARAB learning media, 2) the “very valid” quality of KOSBARAB product based on the assessment by a media expert and two material experts, 3) the “very valid” quality of KOSBARAB product based on the assessment of classification trials on a small and large scale. It shows that students are curiously interested in using KOSBARAB product, and it certainly can increase the basic level of Arabic vocabulary of 5D students of MI Bahrul’ Ulum Tambakberas Jombang.

Keywords: Learning Media, KOSBARAB, Construct 2

Abstrak
Pada era metaverse saat ini pembelajaran bahasa Arab yang memuat tentang mufradat selama ini belum ada yang menerapkan media construct 2 dalam proses pembelajarannya. Maka apabila ditinjau dari medianya tentu akan cocok dengan era metaverse saat ini dan penerapannya juga mudah untuk diaplikasikan. Penelitian ini bertujuan untuk merancang sebuah media pembelajaran kosa kata bahasa Arab dan untuk mengetahui kelayakan dari pegembangan media pembelajaran KOSBARAB yang berbasis android guna untuk diterapkan pada mata pelajaran bahasa Arab siswa kelas 5D MI Bahrul ‘Ulam Tambakberas Jombang. Metode penelitian yang dipakai adalah berupa Research and Development (R&D) dengan model pengembangan dari Borg and Gall yang terdiri dari 10 tahapan.
Instrumen penelitian mencakup observasi, wawancara, angket, dan uji coba. Data penelitian berupa angket ahli, dan angket responden yang dianalisis menggunakan indikator penilaian. Hasil dari penelitian ini adalah: 1) berhasilnya mengembangkan media pembelajaran KOSBARAB, 2) berdasarkan penilaian oleh ahli media dan dua ahli materi, produk KOSBARAB mempunyai kualitas yang “sangat valid”, 3) berdasarkan penilaian uji coba klasifikasi pada skala kecil dan skala besar adalah “sangat valid”. Hal ini menunjukkan bahwa peserta didik tertarik untuk menggunakan produk KOSBARAB yang dapat memperbanyak perbendaharaan kosa kata bahasa Arab tingkat dasar terutama pada kelas 5D MI Bahrul ‘Ulum Tambakberas Jombang.

Kata Kunci: Media Pembelajaran, KOSBARAB, Construct 2.

INTRODUCTION

Human lives nowadays cannot be separated from technology. The progress of technology and information systems is growing quite rapidly, and Indonesia has a development direction in developing smart cities. Efforts to build a smart city are in tandem with the development of Society 4.0, where there are changes in human behavior patterns that optimize the use of technology and information systems and internet technology to access any information and transactions. However, in Indonesia, currently the development and implementation of the Industrial Revolution 4.0 and Society 4.0 are still not optimal (Chumnumporn et al., 2022). In Society 4.0, people's understanding of digital literacy in technology and the internet is minimal. Also, the development of the Industrial Revolution 4.0 and Society 4.0 is still not fully and perfectly implemented in Indonesia.

While Indonesia has still made its progress in Society 4.0, the concept of Society 5.0 was introduced by Japan to the world (Setiawan & Lenawati, 2020). Society 5.0 brings the concept of life that focuses on technology. In line with education and the idea of the Society 5.0 era, the development of creativity using technology to improve the quality of learning must be prioritized. Students feel flexible in learning regardless of space and time and can obtain information at their convenience. However, learning Arabic has several problems (Ahmed & Al-Ward, 2020). Most of today's Arabic teaching still uses old techniques. Furthermore, to keep up with developments in this era, it requires devices that are not cheap. There are still many students who are "untechnical" but they need digital information, and it happens to the parents and community as well (Bimantoro, 2021).

Most students are not only given theories to understand but are also equipped with critical, constructive, and innovative ways of thinking to adapt in their lives. Students prefer games to theories in the learning activities in early childhood because it follows their age characteristics. (Munawwarah, 2022). Therefore, educators can change the learning media according to the learning environment. The role of media in learning is vital, especially in the teaching and learning process, which is an inseparable unit in the education world. Also, media is a teaching tool for educators to provide teaching materials, develop students' creativity, and increase students’ attention in the learning process. Likewise, along with the increasingly sophisticated era, the learning media used technology in the digital era (Albantani, 2019).
Technology in today's digital era affects society and the environment in many ways, including education. Educational technology is a study and practice in learning to improve performance by creating, using, and studying adequate technological processes and resources. Therefore, mobile learning was initially defined as electronic learning via mobile computing device, Palms, Windows CE machines, or digital phones (Anizar et al., 2022). This scope of education also includes learning Arabic, which is increasingly exciting and widespread but has not shown significant success in official institutions such as madrasas (Belle, 2019). Some factors that cause Arabic learning to be less prominent in madrasas, among others, are the use of learning resources and media that are less attractive, less following technological advances, or less providing easy access to students.

Meanwhile, learning Arabic will not be separated from the approach to materials, methods, teaching media, and learning evaluation. In Indonesia, the most studied foreign languages are English and Arabic (Annamalai et al., 2022). Arabic is one of the foreign languages taught in formal and non-formal educational institutions, starting from MI/SD, MTS/SMP, and MA/SMA levels to University level (Huda, 2017). Learning Arabic begins with giving and learning Arabic vocabulary, which aims to: a) introduce new vocabulary to students, b) train students to pronounce vocabulary properly and correctly, c) understand the meaning of vocabulary, and d) appreciate and function vocabulary with oral and written expressions depending on the context. Learning *mufradat/vocabulary* is very important for novice students because it is an early stage in learning Arabic and is very essential for the four language skills: listening, speaking, reading, and writing (Afifah, 2020).

*Mufradat*, according to Syarifah, is the primary matter that Arabic language learners must master (Syarifah, 2019). Mastery of Arabic is vital in humans’ everyday lives. There are many problems in learning Arabic, especially the lack of students’ vocabulary, so it is the responsibility of an educator to increase students’ interest in learning Arabic starting with mastery of *mufradat* around the classroom and school. According to Nur Fitri and Siti Uriana, *mufradat* includes the essential elements in teaching and learning the first language and foreign languages in a balanced way (Fitri, 2017). *Mufradat* is not a goal in teaching Arabic but a means of mastering and applying Arabic, so the students should have mastered the *mufradat*, because it becomes a vital intermediary and the application to get to the four Arabic-speaking maharabs ideally.

As for technology, software always accompanies technological developments from time to time. One of the software development results is currently being developed in HTML 5 technology (Hussein, 2022). HTML 5 is a necessary feature for modern web applications; however, to make HTML 5, an engine is needed to run it perfectly. One of the engines is the Scirra Construct 2 game engine. Scirra Construct 2 is a game engine (game engine) for building applications. With this engine, developers can quickly build HTML 5 games on all platforms. (Hartanto, 2014).

Research on the development of Construct 2 has not been widely carried out. It is usually used in science or exact sciences such as biology, physics, mathematics, and others (Rohman, 2019). However, in the social and educational areas, especially in Arabic learning about *mufradat*, no one has implemented
Construct 2. If it is applied in a learning process as a medium, it is suitable for today's digital era, which can be considered as an innovation in Arabic language learning. Digital-based application is also accessible in the classroom so that learning can be fun and less boring with this learning media innovation (Pradana, 2021).

Therefore, the purpose of research on developing Android-based KOSBARAB learning media is to increase students' Arabic vocabulary from an early age. It is conducted at the elementary level (SD / MI), and the subjects are taken from MI Bahrul' Ulum Tambakberas Jombang 5D students. It is expected that in the future, they can master four maharahs in Arabic, describe their interest, and find out the results of the products that have been made.

METHOD
Research Design

The method used in this research is in the form of Research and Development (R&D), which uses the development model of the procedural Borg & Gall (Hamzah, 2021). According to Effendi and Hendiyani, the stages of developing the research model from Borg and Gall consist of 10: (1) preliminary research/survey, (2) research planning, (3) initial product development, (4) implementation of expert and initial field trials, (5) revision of initial expert and field trials, (6) implementation of main field trials, (7) revision of results of main field trials, (8) operational feasibility tests, (9) final revision of feasibility tests, (10) dissemination and final product implementation (Effendi, 2016). The research model from Borg and Gall carried out in this study was performed starting from the initial step to the final stage according to the ten steps mentioned above.

Data Collection Technique

In this study, the data sources were obtained from 5D students of MI Bahrul 'Ulum Tambakberas Jombang. Additionally, other data sources were taken from a media expert, Mr. Sujono. M.Kom., (a lecturer at the Faculty of Information Technology, University of K.H. A. Wahab Hasbullah Jombang), and two material experts as material validators, Dr. Muhammad Afton Ulin Nuha, M.Pd., (Arabic Education Lecturer at UIN Sayyid Ali Rahmatullah Tulungagung) and Dr. Nurul Musyafa’ah, M.Pd.I., (Head of the Institute for Foreign Language Development at Nahdlatul Ulama University Sunan Giri Bojonegoro). The types of data used were: 1) qualitative data in the form of suggestions and criticisms from media and material experts, and 2) quantitative data to measure the product based on the assessment of scores from media experts, material experts, and students. The data collection techniques used were 1) observation which was made before the implementation of the research and observed through field surveys, data, and research objects; 2) interview which were conducted with the teachers, students, and several experts in the field of media; 3) questionnaires which were distributed and given to students and teachers related to learning Arabic; 4) field trials which were conducted to find out the media effectiveness used in learning Arabic on students’ grades or learning outcomes (Anshori & Iswati, 2019).

Data Analysis Technique

Data analysis techniques in the development of KOSBARAB media were qualitative and quantitative. The data analysis technique used to analyze the data
was qualitative. At the same time, the average calculation of the questionnaire results and the effects of student evaluations or tests were presented through quantitative. The experimental class and the control class were analyzed according to the use of KOSBARAB media development product testing. The determination towards the significant differences in student learning outcomes between the type used as action research (experimental style) and the control class is done by using t-test analysis. However, before the t-test was carried out, the two types must be declared homogeneous or different in their abilities. The data collection results are described in the results and discussions below.

RESULT AND DISCUSSION

In this study, the researchers describe the results and discussion based on the steps of the research model from Borg and Gall, which have been conducted in ten research steps: (1) preliminary research/survey, (2) research planning, (3) initial product development, (4) implementation of expert and initial field trials, (5) revision of initial expert and field trials, (6) implementation of main field trials, (7) revision of results of main field trials, (8) operational feasibility tests, (9) final revision of feasibility tests, (10) dissemination and final product implementation. Here is the presentation.

Preliminary Research/Survey

In this preliminary research/survey stage, the researchers conduct a literature study which includes collecting information in the form of observations, interviews, and questionnaires, and studying reference books related to Arabic subjects, the use of learning media, the Arabic curriculum used in Madrasah Ibtidayyah, and Arabic learning syllabus. In addition, the researchers conducted field studies including the direct observation of schools, the condition of students, and the process of learning Arabic.

Research Planning

After conducting literature and field studies, the next stage is research planning including determining research objectives, estimating costs, energy, and time, and forming researchers’ qualifications. This stage aims to develop Arabic learning media, especially in Android-based vocabulary learning at the primary level, which is called KOSBARAB.

Early Product Development

After planning, producing a product development is implemented. At this stage, there are several steps to develop products, including determining the product’s design, determining the research facilities and infrastructure needed for the research and development process, and determining the stages of design testing in the field.

According to Albet, four steps must be taken at this stage: preparing test patterns, media selection, format selection, and initial design (Maydiantoro, 2018). The product design begins with determining the material sub-chapters first to facilitate the content of the material listed on the Android-based KOSBARAB media, and then making practice questions from the Arabic vocabulary discussion material. In this media product design, there is a storyboard design that has previously been made to make it easier for researchers to produce media that contains an overview of each display (Subaidah, 2020).
The following is the initial product development of KOSBARAB.

Implementation of Initial Expert and Field Trials

After developing the product, the next stage is to test it with media and material experts. Next, the initial field tests are carried out on a limited basis, and the data will be analyzed to assess the results. The developed product is feasible to use. The media expert questionnaire is aimed to get the data about the display and programming aspects, and the material expert questionnaire is used to obtain learning and material element data (Yasmar, 2017).

The validator for media experts in this study is Mr. Sujono. M. Kom., lecturer at FTI (Faculty of Information Technology) Universitas K.H. A. Wahab Hasbullah Jombang. As for the material validator, Dr. Muhammad Atthon Ulin Nuha, M.Pd., lecturer of Arabic Language Education at UIN Sayyid Ali Rahmatullah Tulungagung, acts as the first validator and the second material validator is Dr. Nurul Musyafa’ah, M.Pd.I, head of the Foreign Language Development Institute at Nahdlatul Ulama University Sunan Giri Bojonegoro. After the validator conducts product trials and fills out the questionnaire, the researchers then analyze the results of the questionnaire. After obtaining suggestions from media and materials experts, researchers use assessment indicators. The following is the table of assessment indicators.

<table>
<thead>
<tr>
<th>Assessment Indicators</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>1</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Hesitating</td>
<td>3</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1. Assessment Indicators
For the calculation of the results of the questionnaire, the following formula is used.

\[ P = \frac{f}{N} \times 100\% \]

- \( P \) = Percentage
- \( f \) = Total Score
- \( N \) = Ideal Score
- 100\% = Constant Number

Meanwhile, the results of the media validation questionnaire from Mr. Sujono, M.Kom. can be seen as follows.

**Graphic 1. Media validation questionnaire results**

From the graphic data above, the total score obtained is 59. These results are presented in the percentage which is 91\% and categorized as "Very Eligible." It appears that the media validation result sheet based on media experts is worth testing. However, based on the results of the media validation questionnaire, this application requires revision, namely eliminating some of the same questions in the application.

For the results of the material validation questionnaire, there are two validators who assess it. The first validator is Dr. Muhammad Aftion Ulin Nuha, M.Pd., whose result is as follows:
From the graphic data above, the total score obtained is 86. These results are presented in the percentage, which is 86% and categorized as "Very Eligible." It shows that the material validation result sheet based on the first material expert is worth testing. However, according to suggestions, it still needs revisions to improve the three discussion materials that cannot be opened to repair in the application. The developer should also include the way to use the application.

After revising the suggestions from the first material validator, further trial is conducted by the second material validator, Dr. Nurul Musyafa’ah, M.Pd.I. The result is as follows:

From the graphic data above, the total score obtained is 83. These results are presented in the percentage, which is 83% and categorized as "Very Eligible." It indicates that the material validation result sheet based on the second material expert is feasible to be tested on the primary target, 5D students of MI Bahrul’ Ulum. Before testing it on the primary target, the researchers tried it out in the initial field on a limited basis on July 10, 2022, with five second-semester students of Arabic Language Education at K.H. University. A. Wahab Hasbullah. The students found some unclear illustrations and suggested changing the unclear illustrations with images that match the meaning of the existing vocabulary.
Revised Initial Expert and Field Trial

This stage is an improvement of KOSBARAB application media designed by the researchers based on suggestions from media and material validators. Some matters need to be improved by researchers, including eliminating the same questions on the picture guessing quiz. Also, other problem to address is that three discussion materials cannot be opened for repair in the application. Moreover, the developer should add information on how to use the android application media, and some unclear illustrative images need to be changed with ideas that match the meaning of the existing vocabulary.

Implementation of the Main Field Trial

After the developer improves the product according to the suggestions from the validators and initial field testers, a follow-up test is conducted on the broader field to determine the feasibility of the designed KOSBARAB product. The implementation of this trial is the main field trial which consisted of 15 students from some of the 5E students of MI Bahrul 'Ulum Tambakberas Jombang at the first meeting on July 14, 2022. In the implementation of KOSBARAB product trial, the researchers introduce the product first to the students, and then the students are asked to try it. Researchers found several problems, so improvements must be made again so that the product becomes more valid and effective. The following is the results of the questionnaire from class 5E respondents.

Graph 4. The primary field respondents' questionnaire results

From the graphic data above, the total score obtained is 1312. These results are presented in the percentage, which is 87% and categorized as "Very Eligible." It means that the questionnaire results obtained from the respondents in 5E students of MI Bahrul' Ulum are feasible to use, yet some problems in the questionnaire results need to be fixed.

Revised Main Field Trial Results

After carrying out the main field trials and observations, several things must be improved by the researchers in terms of media, including clarifying the type and size of the font and enhancing navigation/buttons to make it easier.
Operational Feasibility Test

Next is the trial phase on the primary target carried out on a large scale to all 30 students of 5D class of MI Bahrul’ Ulum Tambakberas in two meetings, on July 17 and 21, 2022. At the first meeting on July 17, 2022, the Android-based KOSBARAB application media was introduced to the students. However, the researchers found a problem that made it difficult for students to try guessing quizzes. The quiz was randomly placed between the materials provided while it should be grouped according to the materials list. The researchers also found that the students struggled to click the guessing quiz buttons. After the meeting, the researchers immediately fixed the problems experienced by the students to make KOSBARAB more convenient to use and study. At the last meeting on July 21, 2022, the researchers retested the 5D students and distributed the questionnaires provided to be filled out by the students. Here are the results of the questionnaire from 5D students of MI Bahrul' Ulum Tambakberas Jombang.

Graphic 5. Operational respondent questionnaire results

From the graphic data above, the total score obtained is 2068. The results are presented in the percentage, which is 87% with “Very Eligible” category. It shows that KOSBARAB product from the questionnaire results sheet for 5D students of MI Bahrul’ Ulum Tambakberas Jombang has already feasible to use. However, it still has some problems that must be repaired so that the public can access KOSBARAB product.

Final Revision Feasibility Test

At this stage, the trial is conducted, and several problems that become obstacles in the students’ test are found. First, the placement of questions on the guessing word quiz is put randomly among the materials provided, which should be grouped according to the list of materials. Second, the students found that the click button on the guessing quiz challenging. This revision/improvement is carried out to improve the Android-based KOSBARAB product to make the product more accurate.

Final Product Dissemination and Implementation

The final stage of Borg & Gall’s development is product dissemination and implementation. At the dissemination/dissemination stage, it is carried out to
promote the developed product, which will be accepted by users, whether it is by individuals, groups, or systems. Meanwhile, the implementation is generally for whoever who wants to access KOSBARAB learning media.

From the discussion above, it can be concluded that along with the development of the era, the educational process becomes more advanced with the existence of learning media which make it convenient for teachers to create classes effectively. Of course, students become more enthusiastic about participating in learning. The effectiveness of teaching media in mastering Arabic vocabulary based on theoretical evidence explains that learning tools will be more effective if the media support them (Albantani, 2019). It also makes it easier for teachers in the teaching and learning process; with the press displayed attractively, it will increase student learning interest and affect student achievement results (Nuha, 2019).

Learning media varies, depending on the material to be given and spiked with supporting media. The purpose of the media that supports the mastery of Arabic vocabulary is that students do not experience monotonous task and can memorize the Arabic vocabulary that has been taught.

The teacher’s steps in giving vocabulary, seen in the reality of education today, tend to refer more on the teacher’s creativity and book support which aid learning through the media. Education is now wholly modern, and the internet has dominated the world from childhood to adulthood. The education world has begun to be affected by it, but it also depends on how we use it, especially when learning media has advanced with the existence of multimedia technology applications that are very easy to design. It can definitely facilitate teachers in the teaching and learning process. The learning media effectiveness is not only supported by the teachers’ role but also by students’ and parents’ roles (Syarifah, 2019).

CONCLUSION

The development of KOSBARAB learning media based on Android Construct 2 is done by conducting a Research and Development (R&D) method. The model used in the development is the 10-steps of Borg and Gall procedures. KOSBARAB learning media uses Adobe Photoshop and Adobe Illustrator designs to edit and create assets to develop Construct 2 products. It requires Java, Android Studio, Node.js, Gradle 4.10, and Cordova CLI to build products into applications.

After KOSBARAB media is finished, the product is given to media experts and material experts to determine the feasibility of the media. The results obtained from media experts are 91% with very decent criteria. The results from the first material expert are 86% with very proper measures, and the results from the second material expert are 83% with possible standards. However, there are still some matters that need to be revised. After the product is given to the validators and revised, KOSBARAB product is tested in the main field to 15 students in 5E class of MI Bahrul’ Ulum classes with a percentage of 87% and very decent category. However, some still need to be fixed on the product. After the improvement steps were completed, the next stage is an operational trial which included 30 students in 5D class of MI Bahrul’ Ulum Tambakberas Jombang with a percentage of 87% and very decent category. Thus, KOSBARAB product has fulfilled the feasibility criterion, where the product can be applied and used by the public.
REFERENCE


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