Jurnal EMPOWERMENT; Jurnal Ilmiah Program Studi Pendidikan Luar Sekolah
Volume 13, Nomor 1 February 2024
p-ISSN No. 2252-4738 e-ISSN : 2580-7692

DEVELOPMENT ANDROID-BASED ONLINE LEARNING MEDIA WITH GIF ANIMATIONS AND WHATSAPP APPLICATIONS TO IMPROVE UNDERSTANDING OF BODY ANATOMY SUBJECT MATTER

Rahmat[1], Ansori[2], Agus Hasbi Noor[3*]

[1,2,3] Pendidikan Masyarakat, IKIP Siliwangi, Cimahi, Jawa Barat, Indonesia

[1] rahmatrahmat1702@gmail.com, [2] ansoryalb@ikipsiliwangi.ac.id, [3] agushasbinoor@gmail.com*

Received: October, 2023; Accepted: February, 2024

Abstract

The COVID-19 pandemic is the background for the more extensive development of online learning media used by education in the teaching and learning process. Media and teaching materials are crucial parts of the learning process, especially in online learning. The formulation of the problem in this research is how the development of learning media using WhatsApp and Android GIF animation on the subject of Body Anatomy can be understood by students. The research objective is to find out the development of media and teaching materials on the Body Anatomy subject using WhatsApp media and Android GIF animations. The research was carried out using the R&D method. Online learning media were developed through the validation stage by material experts and media experts. The attractiveness of learning media is based on small-scale trials carried out on 12 students and large-scale trials carried out on 22 students. The test subjects were carried out on 8th grade package B students at PKBM At-Tajdid, Cimahi City. So, the WhatsApp learning media and Android GIF animations that were developed received research in the interesting category and are suitable to be used as learning media for Package B on the Body Anatomy subject.

Keywords: Learning Media, WhatsApp and Android GIF Animation, Body Anatomy

Abstrak

Pandemi Covid 19 melatar belakangi pengembangan media pembelajaran online yang digunakan pendidikan dalam proses belajar mengajar. Media dan bahan ajar merupakan bagian yang sangat penting dari suatu proses pembelajaran khususnya di pembelajaran online secara keseluruhan. Adapun rumusan masalah dalam penelitian ini adalah bagaimana pengembangan media pembelajaran menggunakan Whatsapp dan Animasi Gif Android pada pokok bahasan Anatomi Tubuh dapat dipahami oleh para peserta didik. Penelitian ini dilakukan bertujuan untuk mengetahui pengembangan media dan bahan ajar pada meteri Anatomi Tubuh menggunakan media Whatsapp dan Animasi Gif Android. Penelitian dilakukan dengan metode R & D. Media pembelajaran online dikembangkan melalui tahap validasi ahli materi dan ahli media. Kemenarikan media pembelajaran berdasarkan uji coba skala kecil yang dilakukan pada 12 siswa dan uji coba skala besar yang dilakukan pada 22 siswa. Subjek uji coba dilakukan pada peserta didik kelas VIII paket B di PKBM At-Tajdid Kota Cimahi. Maka media pembelajaran Whatsapp dan Animasi Gif Android yang dikembangkan mendapat penelitian untuk kategori menarik dan layak dijadikan sebagai media pembelajaran untuk Paket B pada materi Anatomi Tubuh.

Kata kunci: Media Pembelajaran, Whatsapp dan Animasi Gif Android, Anatomi Tubuh

How to Cite: Rahmat, Ansori & Noor, A.H. (2024). Development Android-Based Online Learning Media With Gif Animations And Whatsapp Applications To Improve Understanding Of Body Anatomy Subject Matter. *EMPOWERMENT: Jurnal Ilmiah Program Studi Pendidikan Luar Sekolah* 13 (1), 68-76.

INTRODUCTION

Science subjects, as one of the mandatory subjects for every level of formal and non-formal education and the subjects tested, must have adequate learning equipment so that teaching and learning activities in the classroom run in accordance with the expected basic competencies. Science has a long history of creating new knowledge and applying it to human life on a large scale, including encouraging technological development (Yuniati, 2018). Science not only masters a collection of knowledge in the form of facts, concepts, or principles, but also the process of discovery. Science education is oriented towards research and action to help students better understand the natural environment (Kemendikbud, 2014). Science learning provides direct experience for students to scientifically understand their natural surroundings so that they can develop cognitive, psychomotor, and social thinking skills (Prabowo, 2015). According to Pratiwi et al. (2015), science learning includes a collection of knowledge in the form of facts, concepts, and principles, as well as a discovery process. Science learning emphasizes direct experience for students to develop their potential so that they are able to understand their natural surroundings through the process of finding out, which will help them gain experience about their surroundings. But with the pandemic, science learning must be done online or independently by students.

In this regard, so far science teaching, especially human anatomy material, has not reached the desired standard, especially during the pandemic where learning is carried out online. Human body anatomy is a science that studies the structure of the body and the relationship of its parts to each other. Each human body or anatomy has a very important role in human activities, which can be seen from head to toe. The anatomy of the human body is seen from its shape and arrangement, consisting of parts of the body that are related to organs. When examined one by one, the human organs and body are very complex, having their own unique characteristics that differentiate one organ from another. To overcome this problem, it is necessary to improve the learning process to foster student interest and motivation. Recommend solutions by proposing new forms of learning material. One of the things that really influences the learning process today is the learning system, which is supported by technological developments. Based on research results, Indonesia's readiness regarding the use of technology in learning is still relatively low, with a score of 3.9 points (Ayu, 2018).

Regarding online learning, the applications used also have an impact on student understanding. The results of research by Utami and Cahyono (2020) revealed that the cause of students having difficulty understanding material during online learning is the use of complicated applications. Choosing appropriate and interactive online applications is one of the determining factors for students' success in understanding lesson material so that the expected competencies can be achieved (Fentar et al., 2021). Apart from difficulties operating online applications, students also find it difficult to understand the material, there is a decrease in motivation, and the internet network is not good (Napsawati, 2020). It is an obligation for teachers to strengthen their preparation for teaching online, such as during the COVID-19 pandemic. According to Riyana (Anggraini et al., 2021), teachers must prepare several important things before conducting online learning, including preparing teaching materials that are easily accessible to students, lesson plans, strategies, assessments, and so on. Student success is largely determined by the teacher's readiness when preparing learning tools, especially the stability of the material to be delivered. Through the preparation of learning tools, teachers have guidance in organizing the implementation of learning.

Based on the results of an interview conducted with one of the science subject teachers in Package B PKBM At-Tajdid, Mr. Adi said that "learning body anatomy subject matter in pandemic conditions is difficult to carry out because of problems with the network, students' credit quotas, and mobile phone facilities. that students have, thus there is no use of computer media as a means of delivering material. The use of online learning media using Android Gif Animations and the WhatsApp application during the pandemic will really help the effectiveness of the learning process and delivery of messages and lesson content at that time. Apart from arousing student motivation and interest, learning media can also help students improve their understanding, present data in an interesting and reliable manner, make it easier to interpret data, and obtain information.

METHODS

The R&D (Research and Development) technique with action in the scientific approach class was employed in this study. (Gall, M.D., 1989) "Educational Research and Development (R&D) is a process used to develop and validate educational products." According to (Sugiyono, 2010), the Research and Development (R&D) research method is a research technique used to create specific goods and evaluate their efficacy. Certain media are created and their efficacy is tested using the research approach known as research and development (R&D). In contrast, the Scientific Approach is a learning paradigm that applies scientific principles and entails a number of data gathering activities through observation, inquiry, and experiments in processing knowledge or data before transmitting it.

Researchers will employ seven development processes, including: (1) Potential and Problems. The first phase entails doing a potential analysis, identifying problems, and identifying the product that is being developed. Of course, this product must be in line with the target. (2) Data Collection: At this step, data on needs and supporting information are gathered in order to build instructional materials that are suitable for problem identification. (3) Media Design is the process of turning the developed media into a finished product so that it can be tested. (4) Product validation, which involved creating learning materials for human body anatomy science with help from Android gif animations and WhatsApp applications. These materials had previously needed to be examined by media and material specialists. If the product still needs adjustments, testing and revisions are still conducted. If there is none, though, it can be used immediately in the field. (5) Product revision aims to increase researchers' awareness of the flaws in learning media through the findings of media and material experts' validation. (6) Media testing is done at this testing stage so that researchers can determine the efficacy and viability of the created learning media devices. (7) Media Revision: after receiving feedback from media trials, this stage's goal is to perfect the final product.

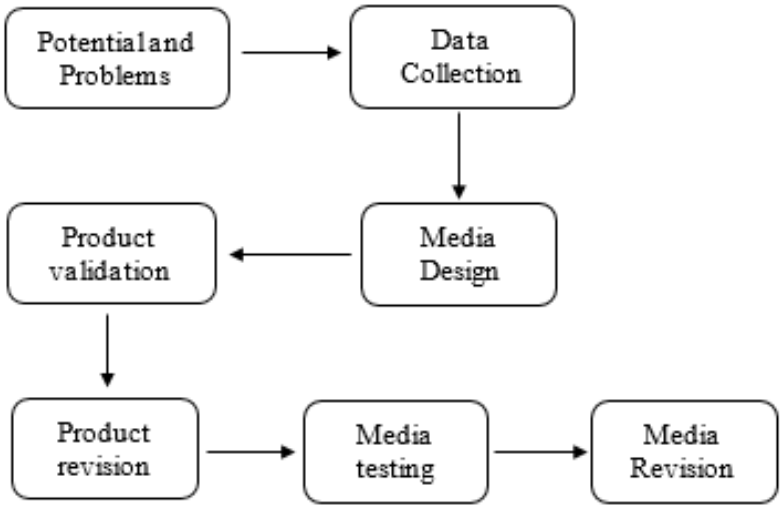

Figure 1. Media Development Research Procedures

For media assessment, researchers used: (1) Based on responses to surveys from material experts, media experts, and students, qualitative data in the form of quality category scores were compiled for learning materials for human body anatomy content.

Table 1. Quality Category

Category	Description
VG	Very Good
G	Good
FG	Fairly Good
B	Bad
VB	Very Bad

(2) Quantitative data in the form of evaluation ratings for each criterion on a questionnaire about the caliber of learning materials on human anatomy that was completed by media experts, subject-matter experts, and students who served as users. Each criterion point's evaluation results in a score on a Likert scale.

Table 2. Likert Scale Criteria

Score	Category
5	Very Good
4	Good
3	Fairly Good
2	Bad
1	Very Bad

Data analysis technique, based on the interval distance from very bad (SB) to very good (SB).

$$Average\ Score\ (\bar{X}) = \frac{Total\ Score\ (\sum x)}{Total\ item\ (n)}$$

Following the construction and research, a table of criteria for respondents' views about media can be created using the interval distance formula as follows:

Table 3. Interval According to Sugeng Eko Putro Widoyoko

Average Score	Classification	Description
>4,2	Very Good	Can be used as an example
3,4 – 4,2	Good	Can be used without revision
2,6 – 3,4	Fairly Good	Can be used with minor revisions
1,8 – 2,6	Bad	Can be used with multiple revisions
≤1,8	Very Bad	Cannot be used yet

RESULTS AND DISCUSSION

Results

The main results of this research and development are as follows: (1) Potential and Problems, The research results obtained from observations in Package B PKBM At Tajdid Cimahi City, interviews with science teachers revealed that science teachers are still using printed books from schools to send data via PDF, photos, and Word, and there are several computer technologies that are not being utilized properly, as well as having never used Android Gif media. (2) Data collection, at this stage data is collected in the form of teaching materials, which will be developed using Android Gifs with material from science books with the 2013 curriculum. At this stage, data is collected regarding the need for practical and interesting human body anatomy teaching materials to motivate and help students understand the material. Supporting data for data collection was obtained from reference sources in science journals related to GIF Android learning media. (3) Media Design, this stage is the stage where all objects of learning media are created. The development of this learning medium begins with creating display features, and from the display features, the initial display will be determined. The initial display that will appear when the user opens the learning media that has been created by the researcher.

Figure 2. Human Body Anatomy Learning Media Design with Android GIF Animations and Whatsapp Applications

(4) Product validation: at this stage, the learning medium is validated by media experts and material experts, and results are obtained in the following graph:

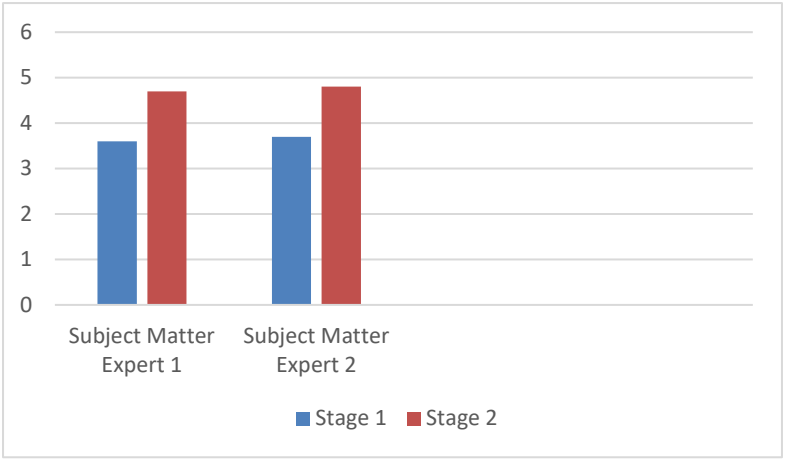

Figure 3. Graphic of Subject Matter Expert Validation Results

Based on Figure 3, validation results by two subject matter experts as validators, validator 1 was obtained at stage 1, namely an average value of 3.6 with the criteria “good” and stage 2 obtained an average of 4.7 according to the criteria “very good” and the average score is 4.15 according to the criteria “good”. Validator 2 at stage 1 obtained an average score of 3.7 according to the criteria “good” and stage 2 obtained an average value of 4.8 according to the criteria “very good” and the average score is 4.25 according to the criteria “very good”. Stage 1 and Stage 2, the results of the two validators have increased and have entered the "good" criteria with a score of 4.2. It can be concluded that the learning medium is valid and can be used without revision.

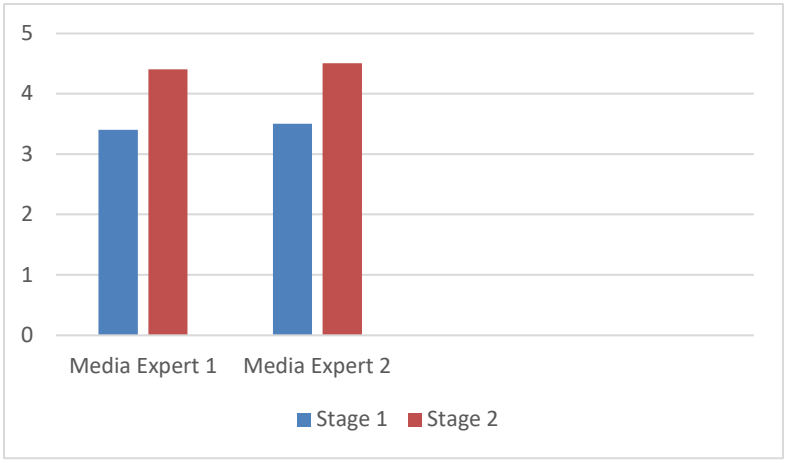

Figure 4. Graphic of Media Expert Validation Results

Based on Figure 4, validation results by two media experts as validators, validator 1 was obtained at stage 1, namely an average value of 3.4 with the criteria "good" and stage 2 obtained an average of 4.4 according to the criteria "very good" and the average score is 3.9 according to the criteria "good". Validator 2 at stage 1 obtained an average score of 3.5 according to the criteria "good" and stage 2 obtained an average value of 4.5 according to the criteria "very good" and the average score is 4 according to the criteria "good". Stage 1 and Stage 2, the results of the two validators have increased and have entered the "good" criteria with a score of 3.95. It can be concluded that the learning medium is valid and can be used without revision. (5) Design Revision: as a result of validation by experts, there are several suggestions regarding learning media that can be developed, including media display concepts, display images, gif designs, and refined use of natural science language. These comments and suggestions are used as a reference for revising the learning media that the researcher has created. The following are media revisions based on suggestions from material experts and media experts:

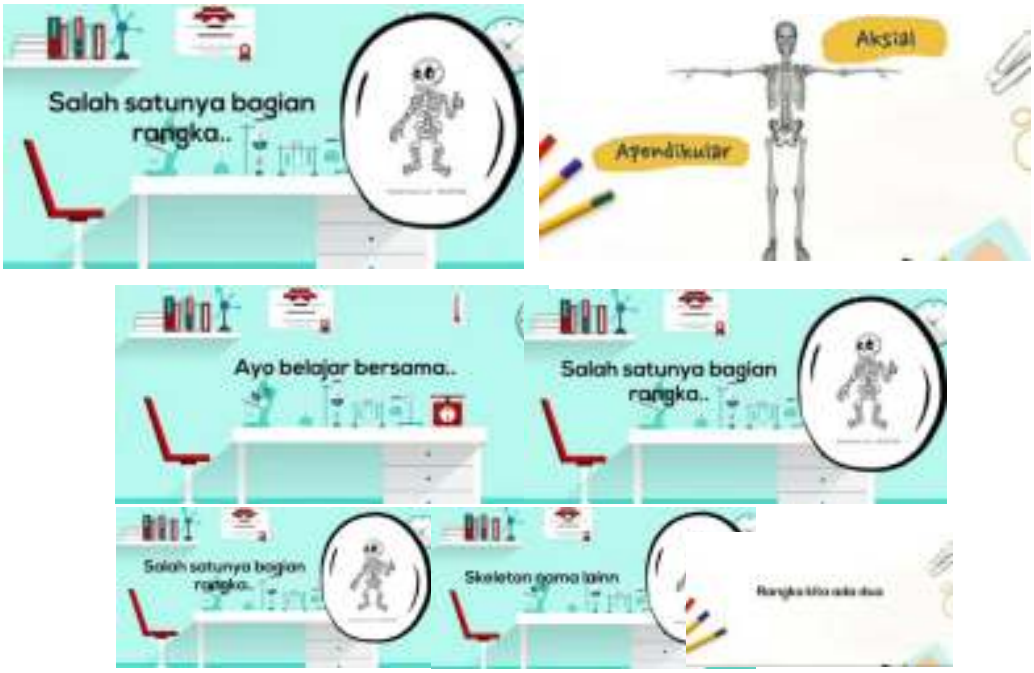

Figure 5. Design Revision Human Body Anatomy Learning with Android GIF Animations and WhatsApp Applications

(6) Media testing: after the media has gone through the validation stage by subject matter experts and media experts and has been repaired, it is then tested with a small class trial consisting of 10 students and a large group trial consisting of 22 class VIII students.

Table 4. Average Results of Student Satisfaction Questionnaire Trials

Uji Coba Skala Kecil	Uji Coba Skala Besar
4,3	4,331

From the results of learning trials that have been carried out in Package B PKBM At-Tajdid Cimahi City, it can be seen that the average of trials has increased, where in small-scale trials the average is 4.3 with the criteria "very good" and in large-scale trials 4,331 with "very good" criteria. (7) Media revision: after carrying out small group trials and large group trials, the learning medium was said to be very good, so no re-testing was carried out.

Discussion

The results of the research show that the human body anatomy science learning media using Android GIF animations and the WhatsApp application are suitable for further use and development. It can be seen from Figure 3, Figure 4, and Table 4 that human body anatomy science learning media using Android gif animations and the WhatsApp application can be a solution for teachers in providing learning to students that is designed to be more creative and innovative with the help of technological developments. The learning media developed has gone through the validation stage by subject matter experts, with an average material suitability score of 4.2 with "good" criteria. Media experts with a media suitability score with an average of 3.95 with "good" criteria and the results of the questionnaire evaluation conducted in the

small group trial with 10 students as respondents, the average rating was 4.2 with the criteria "very good," and in the large group trial with 22 students as respondents, the average assessment was 4.331 with the criteria "very good."

CONCLUSION

Based on the results of research in the field during the COVID-19 pandemic, this media helps during online learning by using social media-based online classes that are modified using Gif animation learning media by reducing the quality of animated motion videos into Gif format with the aim of helping students understand the body anatomy subject matter. Humans in Package B PKBM At-Tajdid, in this way the use of the internet data quota provided by the government can be economical and can be used in all subjects, thus the target of implementing online learning smoothly can be achieved quickly and easily using it. In this way, what the government hopes to support the online learning system in each school can be achieved by maximizing existing internet data quotas and cellphone facilities that do not need to be luxurious, because the WhatsApp application can be used on H+, 4G networks, and chat quotas, with Thus, the burden on teachers, students, and parents can be overcome by using Gif Android learning media. By implementing learning that is smooth, easy, and understandable, the material achievement targets in each subject can be achieved easily and smoothly in Package B PKBM At-Tajdid, Cimahi City.

REFERENCES

Anggraini, S., Nurulwati, & Susanna. (2021). *Kesiapan Guru Fisika dalam Menyusun Perangkat Pembelajaran Daring di SMAN Se-Kabupaten Aceh Tamiang. 9*(6). http://ojs.serambimekkah.ac.id/serambi-akademika/article/view/3085/2382

Ayu, N. A. K. (2018). *Persaingan Industri 4.0 di ASEAN dimana Posisi Indonesia? In Forbil Institute.*

Fentar, Y. C., Allolayuk, S., Putra, S. R., & Tobondo, Y. A. (2021). *Interactive Online Learning Media during Covid-19 Pandemic.* 12.

Kemendikbud RI. (2014). *Pembelajaran Biologi Melalui Pendekatan Saintifik*. Jakarta: Kemendikbud.

Napsawati, N. (2020). Analisis Situasi Pembelajaran Ipa Fisika Dengan Metode Daring Di Tengah Wabah Covid-19. Karst : *Jurnal Pendidikan Fisika Dan Terapannya, 3*(1), 96–102. https://doi.org/10.46918/karst.v3i1.546

Prabowo, S.A. 2015. The effectiveness of scientific based learning towards science process skill mastery of PGSD students. *Jurnal Pendidikan IPA Indonesia*, 4(1):15-19.

Pratiwi, N.L.P.Y., Gading, I. K., & Suartama, I. K. 2015. Analisis proses pembelajaran bahasa indonesia Universitas Pendidikan Ganesha. *Jurnal PGSD Universitas Pendidikan Ganesha,* 3(1):25-32.

Utami, Y. P., & Cahyono, D. A. D. (2020). Study At Home: Analisis Kesulitan Belajar Matematika Pada Proses Pembelajaran Daring. *Jurnal Ilmiah Matematika Realistik, 1*(1), 20–26. https://doi.org/10.33365/ji-mr.v1i1.252

Yuniati, S. 2018. *Implementasi Pendidikan Karakter Dalam Pembelajaran Matematika Melalui endekatan Kontekstual. Al-Khwarizmi: Jurnal Pendidikan Matematika dan Ilmu Pengetahuan Alam. Https://Doi.Org/10.24256/Jpmipa.V2i1.101*