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Developing instagram-based biology animation learning media for junior high school student during covid-19 pandemic in Manado

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Abstract
This study aims to develop an Instagram-based animation medium for learning biology science in junior high school on human breathing material. Conducted at SMPN-7 Manado, when the research starts from October 2020 to April 2021, using research and development methods (Reseach and Development / R&D. by Borg & Gall. The results of the research are in the form of Instagram-based junior high school biology science learning media products on respiratory system material that is consists of instagram accounts, and animations. The evaluation results are in the form of expert validation, one-on-one, and small groups, after the categories are analyzed as a whole the product has 'very good' with an average value of 4.56.

Keywords: development, learning media, animation, biology

Introduction

UNESCO stated that the Covid-19 pandemic had an impact on 166 countries with a total number of affected students ranging from pre-school education to higher education of approximately 1.52 billion students in the world or 87% of the total students and around 60 million teachers were no longer in class.

Based on the Circular Letter of the Minister of Education and Culture of the Republic of Indonesia Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Coronavirus Disease (Covid-19), Distance Learning (PJJ) is carried out, the learning process from home is carried out through distance learning / Online learning which is carried out to provide a meaningful learning experience for students, without being burdened by the demands of completing all curriculum achievements for grade promotion and graduation; Learning from home can be focused on life skills education, including regarding the Covid-19 pandemic; Home learning activities and assignments may vary between students, according to their individual interests, talents and conditions, including considering the gap in access/facilities for learning at home; Evidence or products of learning activities from home are given qualitative and useful feedback from the teacher, without being required to give quantitative scores/values.

Therefore, in the midst of impossible conditions such as today where schools are closed and all activities are limited which makes it difficult for students to study, it is very necessary to have a learning multimedia consisting of various complementary media that is not only interesting, but easy to use and familiar to students. teachers and students but also has complex advantages such as contemporary, easy to use, attractive appearance, complete features and can be used anywhere and anytime as long as they have internet devices and networks such as Instagram. (Paat, 2019).

There are many kinds of learning media, ranging from media in the form of visual, audio, audio-visual media, and others. Media should be manipulated, seen, heard and read. The use of appropriate learning media can make students enthusiastic in learning and present information that is more interesting, reliable, and facilitates the interpretation of information. Therefore, it is necessary to select a media that can meet the needs to achieve the desired goals. One of the learning media that is often used is computer-based or mobile-based learning media.

Through interviews with researchers with 7 teachers and 7 students in May 2020 they said that until now the learning process in schools has been temporarily suspended and replaced by learning from home. The learning process from home is usually carried out through television or online platforms which, although the content and context are good, but due to the lack of supervision, direction and evaluation from the teacher, the learning process is less than optimal, as well as the lack of use of interesting learning media.

For this reason, researchers want to develop an Instagram-based biology learning media that makes one of the social media accounts commonly used by students and teachers so that it can be useful as an interesting, effective and efficient learning media in the learning process and it is expected that time is used to access media. Social media can add insight and knowledge about biological material without the need to interact directly, especially in the midst of a pandemic and social restrictions like today. So it is necessary to develop Instagram-based biology learning multimedia as an alternative learning.

Instagram is a photo and video-sharing social networking service created by Kevin Systrom and Mike. Etymologically Instagram comes from understanding the overall function of this application. The word "insta" comes from the word "instant", like the Polaroid camera which at that time was better known as "instant photo". Instagram can also display photos instantly, like a Polaroid in its display. As for the word "gram" comes from the word "telegram" which works to send information to other people quickly. Similar to Instagram, which can upload photos, videos and other features using the Internet network, so that the information you want to convey can be received quickly. The

advantages of Instagram-based learning multimedia when compared to other media are that this learning media is more interesting because it is accompanied by videos, illustrations, pictures, live broadcasts, and other features, can also be accessed anywhere and anytime, easy to use, and unlimited users.

The word media comes from the Latin word medius which literally means 'middle', intermediary or introduction. In Arabic, the media is an intermediary or an introductory message from the sender to the recipient of the message. In other words, the media is a tool that conveys or delivers learning messages (Arsyad, 2016). Media is a learning tool in schools that aims to improve the quality of education. Media is a means that can be used as a useful intermediary to increase effectiveness and efficiency in achieving goals in learning (Masykur, 2017) [6]

Etymologically multimedia comes from the word multi (Latin, nouns) which means many, various, and medium (Latin) which means something that is used to convey or bring something Multimedia is used in education, which is the integration of text photo, video, audio, graphics and animation into a single medium. (Paat *et al*, 2019) [4, 5, 8] Multimedia used in learning is an integration of media such as text, photos, video, audio, graphics and animation into a medium that is used to help facilitate the learning process.

The learning process must be effective, efficient, fun and can motivate students in developing students' interests, talents, knowledge and abilities (Paat, 2018) Learning must be student-centered, teachers not only explain, but students must be more active and develop their knowledge so that the learning process be optimal. (Kembuan *et al*, 2019) [5].

Learning is a series of activities designed to facilitate students in learning, so that the learning process achieves its objectives, effective learning tools are needed to improve the quality of learning. Implementation of learning tools is related to applying thinking ideas, concepts, innovations, and using learning strategies. Learning tools include the syllabus, lesson plans (Media) according to the learning strategies used, materials, question grids, and assessment rubrics. The use of learning tools will make it easier for students to receive material. Implementation of learning tools is expected to provide changes in knowledge including cognitive, affective, and psychomotor. (Kawuwung & Paat, 2018)

Research and development is the process of developing and validating products used to produce certain products, and testing the effectiveness of these products. The stages carried out in this development research include observation and preliminary research interviews to find out what is currently needed in the learning process amidst the threat of covid 19, at this stage researchers are looking for information on real phenomena that actually occur in the field by interviewing teachers and students. Furthermore, the researcher collects references, this reference collection aims to help researchers find theories, facts and information that support development. Next, the researcher will make the initial product. After the initial product developed is completed. Researchers validated the initial product by a team of experts consisting of material experts and media experts, to determine accuracy.

Multimedia learning that will be designed is expected to increase the interest and understanding of students in participating in the learning process of biology subjects on the material of the human respiratory system, especially when studying at home. In addition, video development is expected to help the learning process for educators, so that educators are interested in making Instagram-based learning multimedia as an alternative to other learning media.

Research Methods

This study uses a qualitative approach with research methods through research and development procedures (R&D; research and development) by Borg & Gall which is modified with the MPI Model by Prof. Suparman because some characteristics of development research can be found in this study such as the researcher is a graduate student who is part of of the learning process, research seeks to solve factual problems experienced by researchers and educational institutions, and this study seeks to discover how relationships occur in an operationally selected context, as well as how to develop an online learning process using Instagram multimedia to help learning process in the midst of unexpected events such as the current Covid-19 pandemic.

Borg & Gall defines that R&D is a process used to develop and validate educational products, in the form of a cycle of steps consisting of: (1) studying findings related to the type of product to be developed, (2) developing product based on the existing findings, (3) conduct a field test of the product in the setting where the product will be used, and (4) revise the deficiencies and weaknesses found in the field test. In its 8th edition, Borg & Gall explained that educational research and development is an industry-based development model, where research findings are used to design new products or procedures for the benefit of the community, then systematically tested in the field, evaluated, and improved until meet certain criteria of effectiveness, quality, and standards (Borg & Gall, 2007) [2].

The steps that will be taken are in accordance with the method of developing Instagram-based biology learning multimedia which refers to the steps of this development research as shown in Figure 1.

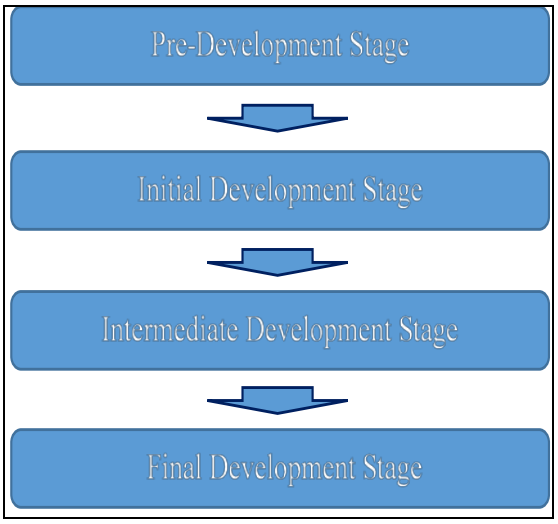

Fig 1: Research Development Steps

Pre-Development Stage

At the initial pre-development stage, preliminary research has been carried out, the researcher develops an initial draft of Instagram-based learning animation media that will be

developed in this study, the media to be developed consists of: Instagram accounts, animations, and lesson plans, most of which are self-made. by researchers and others taken from sources providing free content that can be used freely for both commercial and non-commercial purposes with modifications adapted for research purposes. Applications used in multimedia development include: Instagram, Kinemaster, Windows Movie Maker, Photoshop, Microsoft Word, and Microsoft Powerpoint. After the initial draft of the biology learning media was developed, it was continued to the next stage, namely the initial development stage consisting of a material expert test and a media and design expert test.

Initial Development Stage

The initial development stage was carried out by a material expert test to assess the feasibility of the material from the Instagram-based Biology Science learning multimedia draft by a material expert, after which revisions were made according to suggestions which were then tested at a later stage. namely the media expert test stage and design. After the material expert test was carried out, then a media and design expert test was carried out to assess the feasibility of the media and the design of the Instagram-based Biology Science learning multimedia draft by media experts and the design was then revised according to suggestions which were then tested in the next stage.

Intermediate Development Stage

Intermediate development stage is carried out one-to-one test and small group tests.

The one-to-one test was carried out to determine the effectiveness of Instagram-based Biology Science learning multimedia by taking samples of 6 students (2 people with low abilities, 2 people with moderate abilities, and 2 people with high abilities) based on recommendations from the homeroom teacher.

The small group test was carried out to determine the effectiveness of Instagram-based Biology Science learning multimedia by taking samples of 12 students (4 people with low abilities, 4 people with moderate abilities, and 4 people with high abilities) based on recommendations from the homeroom teacher.

Final Development Stage

After going through the existing stages and making revisions according to the suggestions given, then entering the stage of developing Instagram-based learning multimedia in the final stage, where at this stage the Instagram-based biology science learning multimedia is feasible to use.

Result and Discussion

At the pre-development stage, preliminary research is conducted to collect initial information intended as a basis for developing multimedia to be developed. This initial information collection was carried out by means of observation, interviews and distributing questionnaires to students and teachers involved in learning biology subjects. Respondents involved in collecting this information were students and biology teachers from junior high schools. Based on the observations and results of researcher interviews with 10 student respondents and 3 teacher respondents, it turns out that Instagram-based multimedia development is needed to support online learning during the Covid-19 pandemic.

The initial multimedia development process is carried out with a systematic approach (Input > Process > Output) so that the learning multimedia developed is assumed to be a system that processes input in the form of students who do not yet have competence into output in the form of students who have the desired competencies in accordance with the learning objectives listed in the lesson plans. For this reason, before further multimedia development, lesson plans and animation learning content were developed in Instagram learning media with the Instructional Development Model (MPI) by Prof. Suparman.

Material, Design and Media Experts Test

The initial product of Instagram-based learning multimedia for biology has been developed and the results is animations for biology subjects for class VIII SMP. This initial product needs to be tested to find the shortcomings and weaknesses in this learning media. The first trial conducted was an initial field test. The form of the initial field test that the researchers did was to conduct an assessment or multimedia study conducted by several experts and practitioners who are competent in the field of biology.

The assessment is given a range from very poor to very good, with an average score of **4.67** for the results of the material expert assessment and **4.62** for the results of the media and design expert assessment with a very good category can be seen in Figure 2 for the rating category scale, therefore it can be concluded that this Instagram-based animation media for biology science learning is very good and worthy of field trials with revisions according to suggestions. (Sugiyono, 2018) [10]

One-to-one Test

The one-on-one trial phase was carried out on 6 students of class VIII SMP Negeri 7 Manado consisting of 2 students who have high abilities, 2 people have moderate abilities, 2 (two) people have low abilities based on the scores and information obtained from classroom teacher. One-on-one trials will be conducted on Friday, February 26, 2021, which will be conducted online via live Instagram. At the end of the lesson, students were asked to respond to the multimedia they had just participated in, the results of one-on-one trials obtained data recapitulation with an average value of **4.45.**

Small Group Test

The small group trial will be held on March 24, 2021 via online live media learning biology instagram. In the small group stage, the researchers involved 12 students of class VIII SMP Negeri 7 Manado. At this stage the researcher did the same as in the one-on-one evaluation, but at this small group stage the 12 people selected did not include the 6 students who had been selected in the one-to-one evaluation stage.

In the discussion of small group trials. The results of the small group trial obtained data recapitulation with an average value of 4.50

Based on the evaluation results of material experts, media experts, interviews with teachers and students, one-to-one test, and small group test, with an average value of all above 4.4 (Liker scale) which states that Instagram-based biology

science learning multimedia is very feasible for used.

Conclusion

1. The development of Instagram-based biology science learning animation media is needed in bold learning to support the distant learning process during the Covid-19 pandemic
2. Development of Instagram-based biology science learning animation media is suitable for use in online learning to support the distance learning process during the Covid-19 pandemic

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