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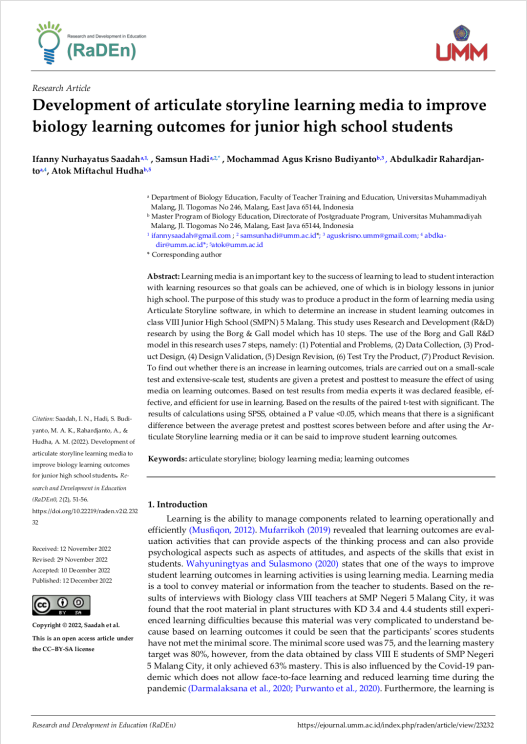

Research and Development in Education (RaDEn)

UMM

Research Article

Development of articulate storyline learning media to improve biology learning outcomes for junior high school students

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Abstract: Learning media is an important key to the success of learning to lead to student interaction with learning resources so that goals can be achieved, one of which is in biology lessons in junior high school. The purpose of this study was to produce a product in the form of learning media using Articulate Storyline software, in which to determine an increase in student learning outcomes in class VIII Junior High School (SMPN) 5 Malang. This study uses Research and Development (R&D) research by using the Borg & Gall model which has 10 steps. The use of the Borg and Gall R&D model in this research uses 7 steps, namely: (1) Potential and Problems, (2) Data Collection, (3) Product Design, (4) Design Validation, (5) Design Revision, (6) Test Try the Product, (7) Product Revision. To find out whether there is an increase in learning outcomes, trials are carried out on a small-scale test and extensive-scale test, students are given a pretest and posttest to measure the effect of using media on learning outcomes. Based on test results from media experts it was declared feasible, effective, and efficient for use in learning. Based on the results of the paired t-test with significant. The results of calculations using SPSS, obtained a P value <0.05, which means that there is a significant difference between the average pretest and posttest scores between before and after using the Articulate Storyline learning media or it can be said to improve student learning outcomes.

Keywords: articulate storyline; biology learning media; learning outcomes

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1. Introduction

Learning is the ability to manage components related to learning operationally and efficiently (Musfiqon, 2012). Mufarrikoh (2019) revealed that learning outcomes are evaluation activities that can provide aspects of the thinking process and can also provide psychological aspects such as aspects of attitudes, and aspects of the skills that exist in students. Wahyuningtyas and Sulasmono (2020) states that one of the ways to improve student learning outcomes in learning activities is using learning media. Learning media is a tool to convey material or information from the teacher to students. Based on the results of interviews with Biology class VIII teachers at SMP Negeri 5 Malang City, it was found that the root material in plant structures with KD 3.4 and 4.4 students still experienced learning difficulties because this material was very complicated to understand because based on learning outcomes it could be seen that the participants' scores students have not met the minimal score. The minimal score used was 75, and the learning mastery target was 80%, however, from the data obtained by class VIII E students of SMP Negeri 5 Malang City, it only achieved 63% mastery. This is also influenced by the Covid-19 pandemic which does not allow face-to-face learning and reduced learning time during the pandemic (Darmalaksana et al., 2020; Purwanto et al., 2020). Furthermore, the learning is

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carried out online or can also be called distance learning, so teachers or instructors must have creativity or innovation (Darmalaksana et al., 2020; Handarini & Wulandari, 2020). using current technology so that learning material can continue to be delivered properly (Wahyuningtyas & Rosita, 2019).

Articulate Storyline is software that can be used as a medium for conveying information and presentations (Yahya et al., 2020). The use of Articulate Storyline learning media is well applied to plant structure material because using Articulate Storyline can process learning media from images, text, sound, graphics, video, and animation so that it makes it easier for teachers to carry out learning activities (Setyaningsih et al., 2020). Nurfajriani (2020) said that Articulate Storyline media has advantages such as smart brainware which is easy to apply and the drawback of this software is the need for internet access in order to be able to use or open learning media.

SMPN 5 Malang, based on the results of observations this school has a total of 870 students and a total of 62 teachers and school staff. In science subjects, precisely in Biology class VIII, the number of study hours per meeting is 3 lesson hours (LH) per week with a total of 25 weeks per semester and the time allocation required to cover plant structure material is 12 LH (4 meetings, 1/week), and 1 LH is required for plant root material. 1 LH learning is carried out for 45 minutes. The material discussed in the Plant Structure subchapter is analyzing and functioning root structure, analyzing stem structure and function, analyzing leaf structure and function, analyzing flower structure and function and analyzing seed structure and function, as well as presenting observational data and making reports.

Previous research has examined the use of Articulate Storyline software (1) as a learning medium in material for drawing function graphs (Pratama, 2018), (2) material for Hindu kingdoms and Buddhism in Indonesia (Setyaningsih et al., 2020), (3) development of electronic engineering interactive learning (Yumini & Rakhmawati, 2015), (4) computer learning content (Mumtahana et al., 2020), (5) class economics learning material X (Sapitri, 2020), (6) the use of Articulate Storyline in the 7th class IV SD theme material (Arwanda et al., 2020), (7) Indonesian History material for class X (Nugraheni, 2017), (8) material for the Human Reproductive System (Yasin, 2017). From previous research, it can be stated that the use of Articulate Storyline learning media has never been studied on plant structure material. Therefore this research is important to do to determine its effectiveness. In the future, it is hoped that the results of this research can be used as a reference by researchers to develop learning media based on Articulate Storyline software.

2. Materials and Methods

This study uses the Research and Development method. Research and development (R&D), namely research methods used to produce certain products and test the effectiveness of these products (Sugiyono, 2019). This research model uses R&D from Borg and Gall or what can be called the research and development model.

The R&D research is an activity to develop products and validate products (Borg et al., 1983). There are several steps to using this research model, namely (1) looking for potential and problems, (2) collecting data, (3) designing products, (4) validating designs, (5) product trials (6) revisions, (7) product trials, (8) design revisions, (9) product revisions, (10) mass production (Sugiyono, 2014).

3. Results

3.1 Limited Test

It is known from the results of the data obtained that the Articulate Storyline media in the initial/limited test was able to increase the average posttest score to the average pretest score from an average of 50% to 80%. There is an average increase between the pretest and posttest scores on the initial/limited test by 30%. This value is the value of student results when carrying out the learning process using Articulate Storyline media. This proves that there is an increase in student learning outcomes about the subject

concept of plant structure on roots. The graph of increasing mastery of concepts can be seen in Figure 1.

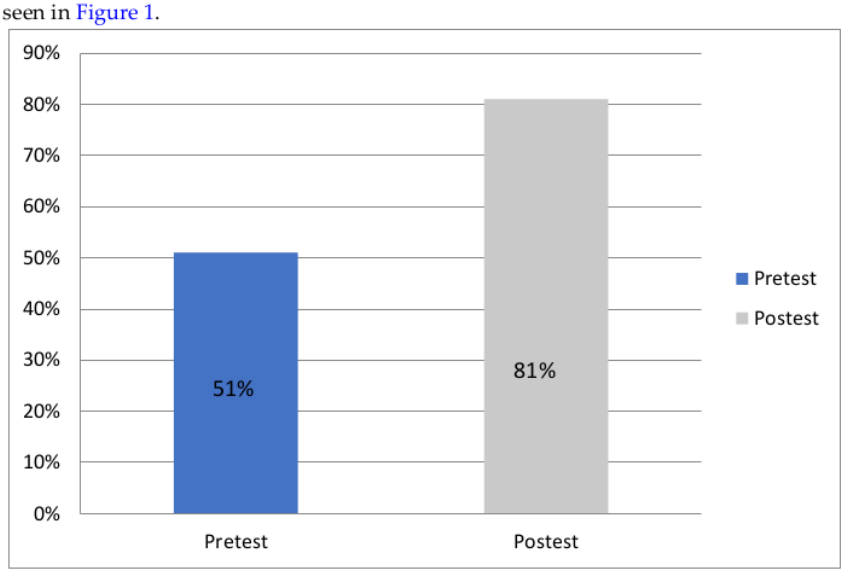

Figure 1. Graph of improved student learning outcomes from the pretest

3.2 Extensive Test

The results of the data obtained show that Articulate Storyline media is able to increase the average posttest score to the average pretest score from an average of 50% to 80%. There is an average increase between the pretest and posttest scores of 30%. This value is the value of student results when carrying out the learning process using Articulate Storyline media. This proves that there is an increase in student learning outcomes about the subject concept of plant structure on roots. The graph of increasing mastery of the concept can be seen in Figure 2.

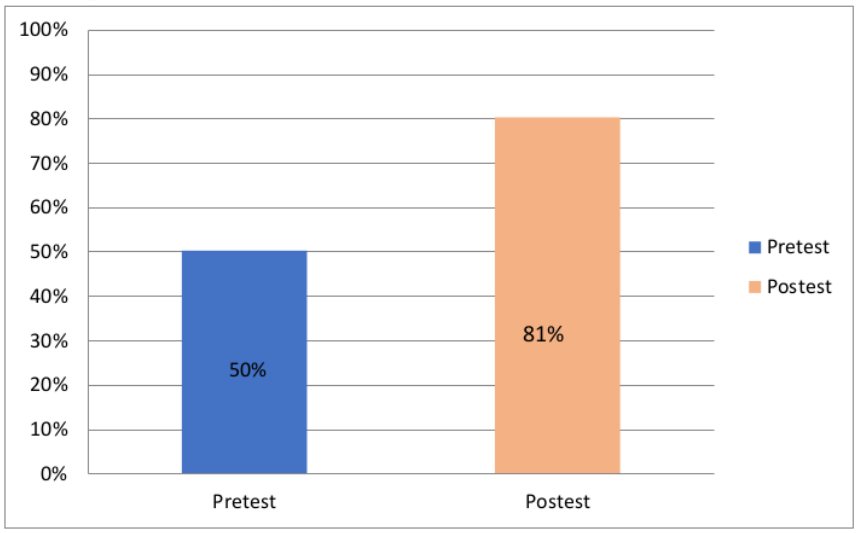

Figure 2. Graph of improved student learning outcomes from the pretest

4. Discussion

At the data collection stage, the researcher gave a response questionnaire for teachers and students, a validation questionnaire for material experts and media experts, as well as the results of the pretest and posttest of students using the media as a whole, the overall average percentage obtained a result of 87% which showed that the Articulate Storyline learning media gave a positive response from students of SMP Negeri 5 Malang, these positive results had a good impact on Articulate Storyline media so that it could continue to be used during learning and this was in accordance to the statement by Setyaningsih et al., (2020) that Articulate Storyline media could provide an increase in student learning outcomes.

The results of the response to the subject teachers showed that the results of the validation by the biology class VIII teacher obtained a value of 83%, and based on these results, the media used included material that was very suitable for use. From the results of the teacher's response to the Articulate Storyline learning media, it has a positive impact so that the media can continue to be used when teaching and of course makes it easier for teachers to carry out activities both online and offline. This is in accordance that online and offline learning using technology-based learning media can help learning and teaching activities, especially during the Covid-19 pandemic (Baldwin & Ching, 2019; Ichsan et al., 2020). One of learning media is Articulate Storyline based which can help students and teachers to continue implementing study activities (Arwanda et al., 2020; Mumtahana et al., 2020; Nurfajriani et al., 2020; Setyaningsih et al., 2020; Yumini & Rakhmawati, 2015). In addition, Setyaningsih et al., (2020) states that the use of this media has a good effect in order to improve and develop students' psychomotor skills and also meet the demands in the technology 5.0 era, that prospective teachers must have skills in using technology in an effort to become professional teacher candidates.

Data collection was also carried out on validation questionnaires by media experts and also material experts, collecting validation questionnaires from media experts obtained validation results by media experts, namely Mrs. Tutut Indria Permana, M.Pd, obtained a value of 73%, and based on these results, the media used includes media that is suitable for use. The validation results questionnaire was also assessed by the material expert, namely Dr. Abdulkadir Rahardjanto, in the assessment of media experts, the results were 95%, and based on these results, the material in the media was very suitable for use.

Based on the results of the validation of media experts, material experts, teacher and student responses, they received very positive scores (questionnaire attached) for Articulate Storyline learning media as well as an increase in student learning outcomes in plant structure material. This is in accordance with the statement by Pratama, (2018) that Articulate Storyline-based learning media is more practical and effective as a learning medium. Therefore, this study can be concluded that there is an influence of core Articulate Storyline learning media to improve student learning outcomes at SMP Negeri 5 Malang City.

5. Conclusions

In research on the development of Articulate Storyline learning media on Plant Roots material, it can be concluded that the development of Articulate Storyline learning media based on the Borg & Gall model can improve student learning outcomes at SMP Negeri 5 Malang. The increase in the average value obtained by students was 80% after using the developed media. Based on the results of media validation obtained 73% and material validation results of 95%, which can be interpreted as Articulate Storyline learning media products on Plant Roots material categorized as media that are suitable for use.

Author Contributions: Saadah, N. S and Budiyanto, M. A. K.: methodology, analysis, and describe result; Hadi, S: review.

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Conflicts of Interest: There is no conflict interest between the authors.

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