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Development Of Virtual Smart Human Exretory System Learning Media Based On Articulate Storyline 3 To Increase Student Motivation And Learning

Mulhayati

Department of Biology Education, Faculty of Teacher and Education, University of Kuningan, Indonesia
E-mail: mulhayati77@gmail.com

Zainal Abidin

Department of Biology Education, Faculty of Teacher and Education, University of Kuningan, Indonesia

Asep Ginanjar Arip

Department of Biology Education, Faculty of Teacher and Education, University of Kuningan, Indonesia

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Abstract: COVID-19 pandemic in Indonesia caused a change in the system of conventional learning activities to distance learning. Some of the obstacles to the distance learning system from the results of the questionnaire analysis of learning media needs for some students and teachers are the low motivation of students in participating in PJJ so that student learning outcomes are also low. Researchers have the idea that PJJ is done by utilizing interactive multimedia which is expected that students do not feel monotonous in participating in PJJ which has an impact on increasing student learning outcomes. Articulate Storyline 3 is one of the multimedia authoring tools used to create interactive learning media with content in the form of a combination of images, text, sound, graphics, video, and animation. This research method adapts the ADDIE development model. The subjects of this study were students of class VIII G SMPN 7 Cirebon City totaling 36 students. The results of the analysis of this study indicate that the interactive learning media virtual smart human excretory system based on articulate storyline 3 on the excretory system material is feasible to use because it can increase students' learning motivation, the average normalized gain index from pretest to posttest is 0.70 high category and the results learning is 0.73 with a high category, and the level of functioning of the virtual smart human excretory system learning media is at a functioning level with a very effective category.
Keywords: *Learning Media; Articulate Storyline 3; Excretion System; Development*.

INTRODUCTION

Articulate Storyline 3 is one of the multimedia authoring tools used to create interactive learning media with content in the form of a combination of images, text, sound, graphics, video, and animation. This research method adapts the ADDIE development model. The subjects of this study were students of class VIII G SMPN 7 Cirebon City totaling 36 students. The results of the analysis of this study indicate that the interactive learning media virtual smart human excretory system based on articulate storyline 3 on the excretory system material is feasible to use because it can increase students' learning motivation, the average normalized gain index from pretest to posttest is 0.70 high category and the results learning is 0.73 with a high category, and the level of functioning of the virtual smart human excretory system learning media is at a functioning level with a very effective category.

Use APA Citation 6th edition for in- text citations and the reference list. For in- text citations, use the author's name and year (Author, 2012), and if there are direct quotes, then provide the page number (Author, 2010, p. 24 or pp. 24-26). If you are citing more than one references, put them in alphabetical order (Alpha, 2009; Beta, 2016). For a reference with up to five authors, use all the names in the first instance (Author1, Author2, Author3, Author4, & Author5, 2017), and then use the first author *et al.* subsequently (Author1 *et al.*, 2017). Do not use footnotes.

In Introduction, Authors should state the objectives of the work at the end of introduction section. Before the objective, Authors should provide an adequate background, and very short literature

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survey in order to record the existing solutions/method, to show which is the best of previous researches, to show the main limitation of the previous researches, to show what do you hope to achieve (to solve the limitation), and to show the scientific merit or novelties of the paper. Avoid a detailed literature survey or a summary of the results Education is influenced by increasingly modern science and technology. Information technology is currently advancing rapidly towards the 5.0 industrial revolution. The learning process in educational units is carried out interactively, inspiring, fun, challenging, motivating students to participate actively, and providing sufficient space for initiative, creativity, and independence in accordance with the talents, interests, and physical and psychological development of students. (Regulation of the Government of the Republic of Indonesia Number 19 of 2005 article 19 paragraph 1).

The COVID-19 pandemic in Indonesia has caused a change in the conventional learning activity system to distance learning. government to make difficult decisions, including all learning activities in formal schools being moved at home using online learning methods. These changes make the first education sector must adapt to the use of information technology as a medium in order to keep learning activities can be carried out. Independent learning as one aspect of the process in education is the most important thing. This is a determinant of student success in mastering the material being studied. With the current pandemic situation, it is necessary to do an interactive multimedia learning innovation so that learning is more effective. Effective learning media causes students to be motivated to learn (Ratna, 2020).

Online learning media provides several options that can be used for teaching and learning activities. There are two online teaching methods that are commonly used today, namely video conferences and learning videos. The first method, video conferencing, allows the implementation of the teaching and learning process and interacts between teachers and students live remotely. This teaching method can be done using common technology to conduct meetings or remote meetings online, for example: zoom, skype, and google meet. The second method is to record the delivery of learning materials in the form of videos. Here the learning process is not carried out live. The teacher designs and makes videos, then distributes them to students. One of the technologies commonly used for the distribution of learning materials is YouTube. Some other technologies such as youtube include: coursera, edx, udemy or teacher's room as online learning video services that are quite popular. The online learning method using video conferencing is one of the most widely used alternatives so far. This is because the teaching and learning process can still be carried out by moving from the classroom to the virtual room. However, the use of video conferencing is also less effective.

At the time the author made observations at SMP Negeri 7 Cirebon City, distance learning during the pandemic was held through three learning methods; the first PJJ live Streaming Youtube School with its google meet facility as a means of interaction with students, the second uses the school's E Learning application and the third uses local TV channels in the City of Cirebon RCTV Langka Padane. After the researchers observed, based on the results of the questionnaire given to several teachers in the analysis of learning media needs, there were at least 3 (three) main obstacles that the researchers identified. The first obstacle in E-Learning are: 1). Limited human resources, 2) Parents are less willing and able to accompany children to study at home because there areresponsibilities other, 3). Learning is still one way. The second obstacle, namely the PJJ RCTV Langka Padane is: 1) not all students at home can catch RCTV Langka Padane broadcasts, 2). passive students because they only watch, 3). The broadcast schedule sometimes changes and does not cover all the material in each subject,). Data from MGMP IPA Cirebon City student response was still low either when the program was broadcast or when working on questions on Googleform after the broadcast, which was around 44.64% (out of 18 State Junior High Schools). The third obstacle is the school's live streaming PJJ; 1) Limited student facilities, 2). The school's server network is sometimes unstable. 3). Learning is still one way, 4). Student participation is still low, about 50% of all students at the level. 5). Lack of interactive students in learning, monotonous learning methods are less creative and interactive students.

From some of the obstacles to the distance learning system above that the researchers took from the results of the questionnaire analysis of the needs of learning media for some students and some teachers, it can be concluded that the outline is due to the low motivation of students in participating in PJJ so that student learning outcomes are low, so researchers have the idea that PJJ is carried out. at this time is by utilizing interactive multimedia which is expected that students do not feel monotonous in participating in PJJ which has an impact on increasing student learning outcomes. Interactive multimedia is a combination of various media in one program and provides a reciprocal response for users to be able to carry out various learning activities (Rafmana & Chotimah, 2018). Interactive learning allows students to easily understand and absorb the material being taught (Rafmana, et al, 2018).

The author's idea as an improvement step from the current distance learning process is to design an interactive learning media, where students not only see video presentations of material delivery, but can also interactively choose materials, do exercises, and take tests in one application. By using the Articulate Storyline 3 application, the author tries to design a virtual packaging of teaching materials on

the excretory system material in humans. Articulate Storyline 3 is a program that can support modern digital-based learning designers ranging from beginners to professionals. Darmawan (2016) states that Articulate Storyline 3 is an application program supported by smart brainware in a simple manner with interactive tutorial procedures to help users format CDs, personal web and word processing, through templates published both offline and online. Articulate Storyline 3 is one of the multimedia authoring tools used to create interactive learning media.

Science learning material on the human excretory system requires students to be able to identify the parts of the excretory organs and their functions, and understand the workings of the excretory organs and diseases. or disturbances caused by the destruction of the excretory organs and their prevention, with learning that is only in the form of rote learning will certainly have a small impact on students' understanding, so media are needed that make it easier for students to learn the material. Some other teachers are quite creative, namely using powerpoint slides in the learning process, but the learning seems to only move the text of the book into slides because of the limited ability of teachers to manage technology-based learning media. The media needs to be developed so that learning becomes more optimal. This study aims to develop interactive learning media based on the Articulate Storyline 3 application on the excretory system material in humans.

Based on this, the author is interested in conducting a study entitled "Development of Virtual Smart Human Ecxretory System Learning Media Based on Articulate Storyline 3 to Improve Student Motivation and Learning Outcomes on Human Excretory System Material".

METHOD

Research design in this case the development design of virtual Smart Human The Excretory System Based on Articulate Storyline 3 adapts the ADDIE development model, which is a development model consisting of five stages including analysis, design, development, implementation and evaluation. The ADDIE development model was developed by Dick and Carry (1996) in Rianto (2020) to design a learning system. The researcher modifies the development model according to the needs, the flexibility of each component that can be translated according to the needs into advantages and disadvantages ofADDIE, as follows:

Subjects in this study were all students of class VIII G SMPN 7 Cirebon City in the 2021/2022 academic year, totaling 36 students, the object of this research is the interactive learning media Virtual Smart Human Ecxretory System Based on Articulate Storyline 3. The research will be conducted at SMP Negeri 7 Cirebon City. The location is on Jalan Ciremai Raya number 65 Perumnas, Larangan Village, Harjamukti District, Cirebon City. This research was conducted for 9 (nine) months, starting from March-November 2021. The research was carried out according to the schedule of Integrated Science subjects in class VIII SMP Negeri 7 Cirebon City.

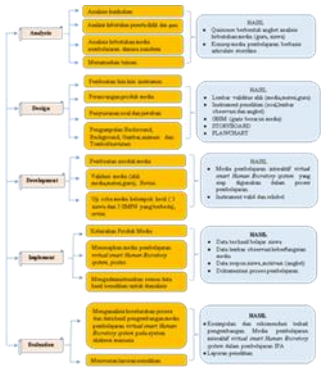

Figure 1. *Research Flow*

RESULTS AND DISCUSSION

The results of the analysis of this study indicate that the interactive virtual smart human excretory system learning media in science lessons is the excretory system material in humans which was developed using the articulate storyline 3 software published in html5 form, which is a learning media maker software supported by text content. , images, audio and video that can be adapted to the learning objectives. The resulting media is also supported by interesting quiz content and a daily test menu (posttest), so that students can immediately see their scores and students can directly interact actively in learning activities that are more independent so that they can increase motivation in learning. These results are in accordance with the research of Rianto (2020), Rohmah & Bukhori, (2020) stating that Articulate Storyline 3 is one of the multimedia authoring tools that can be used to create learning tools that interact with each other with content formed from a combination of text, images, graphics, sound, animations, and videos. Articulate Storyline publishing the results of a web-based (HTML5) or a file application that can run on a variety of instruments such as a laptop, tablet, smartphone or mobile phone, media interactive learningis capable of making students more active and motivated in learning.

The development of Virtual Smart Human Excretory System-Based Interactive Learning media based on Articulate Storyline 3 was carried out in several stages. As for in this study, the steps according to the ADDIE model were used, starting from analysis, design, development, implementation and evaluation which will be explained as follows:

Analysis Phase

Curriculum Analysis

At this stage, researchers conduct an analysis based on the curriculum that applies at SMPN 7 Cirebon City, namely curriculum 13 and the Covid-19 emergency curriculum. The stage of instructional analysis is to

make adjustments between the material in the 2013 curriculum book for science lesson content and distance learning modules during the covid 19 pandemic for junior high school level with excretory system material in humans presented in the learning media.

Based on the results of the curriculum analysis and the needs that have been obtained, the development of interactive learning media is needed in distance learning for the purpose of improving student learning outcomes and motivation, called interactive because this media is designed to involve active user responses. In addition, the development of interactive learning media supports the theory put forward by Sadiman (2009: 7) in Rafman (2018) explaining that the media is anything that can be used to channel messages from the sender to the recipient so that it can stimulate thoughts, feelings, attention, interests, and interests. the attention of students in such a way that the teaching and learning process occurs from the opinions of experts it can be concluded that interactive learning media are learning media based on text, images, sound and animation and can provide feedback to users of what has been inputted into the media to help the learning process thus making the teaching and learning process more interesting.

Needs Analysis

Assessment was conducted by distributing a questionnaire using google form in the form of a link to 94 students and 6 science teachers at SMPN 7 Cirebon City, namely to find out the state of learning at home, learning facilities for teachers and students, motivation in distance learning and the need for learning using interactive media based on articulate storyline 3. The results of the needs assessment (need assessment) show that interactive multimedia is indeed needed in the PJJ IPA process during the Covid 19 pandemic, 100% of all teachers and 97.5% of students expressed interest and wanted to use interactive multimedia based on articulate storyline 3 in the science learning process, so that the development of multimedia articulate storyline 3 really needed to be developed and was expected to be a solution to increase student motivation and learning outcomes on human excretory system material.

The Software Analysis

Use of this software is like making power point lessons but combined with a trigger function without coding that is easy to use to enable navigation buttons, Articulate Storyline 3 is a powerful application as an interactive and easy e-learning creation tool without using a complicated programming language, There are several conditions that must be met to install the Articulate Storyline 3 application on a computer, which Amiroh, S.Kom (2020) has stated in his book Proficient in Creating Articulate Storyline Interactive Media 3.

Design Stage

Compiling The Instrument

Researchin the form of a grid of questions, questions and answers to 30 multiple-choice test questions for learning outcomes, the test sheet for the validity of the learning outcomes test instrument by the teacher. science learning practitioners, Questionnaire responses to the interest of sis wa (large scale on the use of interactive media, Questionnaire of student responses to media trials on a small scale, Questionnaire of student learning motivation observation sheet before and after learning using media, Questionnaire of observation sheet on media functioning on student motivation and learning outcomes.

Develop an Outline of Media Content

Researchers begin to develop an Outline of Media Content which contains things that will be presented in virtual learning media smart Human Excretory system Based on Articulate Storyline 3.

Develop Flowcharts or The Diagrams

Following is a flowchart of the interactive virtual learning media smart Human Excretory system based on Articulate Storyline 3.

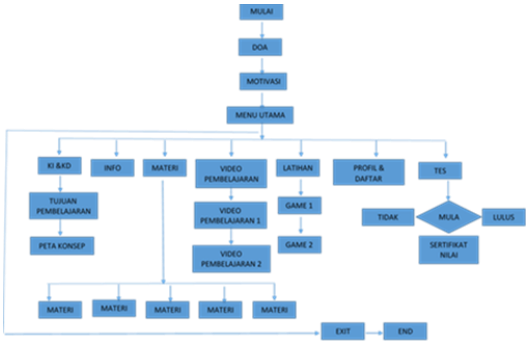

Figure 2. *Flawchart design of the interactivelearning media virtualsmart Human Excretory system Based on Articulate Storyline 3*

Creating a Story Board

Storyboard is structured according to the previously created GBIM , which contains information on visual and audio forms, in the form of designs for all media displays and each display design, descriptions of navigation and animation, and descriptions of narration/audio. Story is made as a guide for researchers in the next stage, namely making media.

Development

Stage The development stage is carried out by creating a virtual learning media product for the Smart Human Excretory system based on Articulate Storyline 3 in accordance with the results that have been carried out at the design stage obtained by GBIM, material descriptions, flow chat, and storyboards. The development stage consists of three stages, namely, pre-production, production, and post-production, which are as follows:

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Figure 3. *Opening Media*

Figure 4. *Media Usage Info*

Figure 5. *Exercise (game) instructions menu and daily test*

Figure 6. *Info Media Reference Media*

Figure 7.*Backsound Choices*

Figure 8. *Learning Prayers and Learning Motivation*

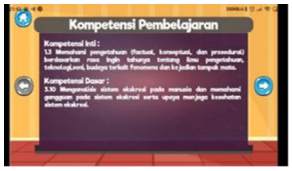

Figure 9. *Competency Menu*

Figure 10. *Main Menu of Human Excretory System Materials*

Figure 11. *Developer Profile*

Figure 12. *Student Achievement Certificates*

Research analysis at the design stage, resulted that the preparation This design greatly influences the overall form of the interactive learning media that will be developed, at this stage according to the research of Nadia Aprilia (2021) in Rianto (2020) which states that the development stage is carried out by making storyboards as an elaboration of the designed learning flow (flowchart).) so as to produce learning media which will later be revised and validated so that a produce valid learning media.

Material Validation Test Material

Experts for the Virtual Smart Human Excretory System learning media consist of two validators, the first is Mrs. Dr. Hj. Ria Yulia Gloria, M.Pd, she is a Biology Lecturer at IAIN Syeh Nur Jati Cirebon and the second is Drs. H. Sugihartono, M.PdI who is the Supervisor of SMPN 7 Cirebon City who is also the Supervisor of Science Lessons at the Cirebon City Education Office, media validation by material experts is carried out in two stages before the media is tested on a small scale and large scale media trials.

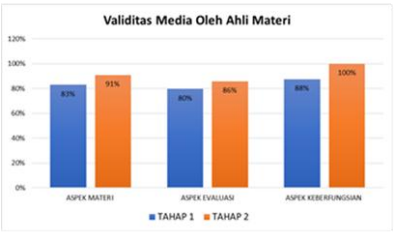

Figure 13. *Graph of Material Validity Analysis Phases 1 and 2*

Media Validation Test

Based on the results of the validation tests that have been carried out, the validity of the Vitrual Smart Human Excretory System Learning Media According to Material Experts (validator 1 and validator 2) in stage 1 and stage 2 can be seen in the graphic form below.

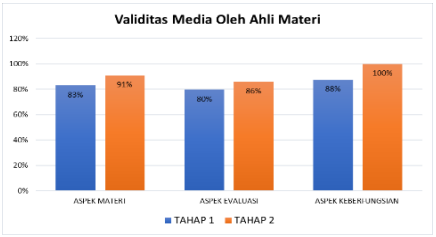

Figure 14. *Media Validity Analysis Phase 1 and Phase 2*

Description The graph shows the percentage increase in all aspects. Both in the material aspect, evaluation aspect and functional aspect. The highest aspect is found in the functional aspect of the 2nd stage of validity. Based on the calculation of the feasibility of the media by material experts in each aspect, it gets a very good validity score with the category of Very Eligible to be used as a learning medium by material experts.

Validation Test of Science Learner Experts

In the validation of the development of the Virtual Smart Human Excretory System learning media, two science learner practitioners were involved. The science learning practitioners are those who teach science subjects for class VIII and class IX, namely Mrs. Yeni Prabandari, S.Si, M.Pd and Mr. Ocid Rosid, S.Pd who are science teachers at SMPN 7 Cirebon City, validation is carried out related to the Relevance Aspect Materials/Contents, Language Aspects and Media Functional Aspects for Learning Strategies developed by filling out questionnaires on a scale of 1-4. Media validation by science learning practitioners was carried out in two stages before the media was tested on a small

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scale and the media was tested on a large scale.

The Implementation

Phasephase of the interactive virtual learning media smart Human Excretory system is carried out to measure student learning outcomes and student learning motivation with a design – group pretest-posttest design, namely by pretest before being given treatment. In the field trial conducted by all students of class VIII G SMPN 7 Cirebon City as many as 36 students. The field trial was conducted on Saturday, August 21, at 08.00 to 10.00 WIB via ONLINE with the googlemeet application via the link: : https://meet.google.com/dji-xpdc-xin because it is still distance learning, while the link for learning media The interactive virtual smart Human Excretory system, namely https://bit.ly/Media_Interaktif_HES, is distributed to students during ONLINE learning.

After revising the Virtual Smart Human Excretory System learning media product from the experts, the researcher conducted a small/limited trial intended to find out an initial picture of how prospective users respond to the Virtual Smart Human Excretory System learning media before involving many students. The trial was carried out online because it was implementing distance learning, namely by sharing the media link https://bit.ly/MediaInteraktifHES which was in HTML 5 form. Aspects of the small group trial assessment included: (1). Aspects of Learning Motivation after being averaged is 4.72 with a very good category and 94.40% is obtained so that it is included in the very feasible criteria, (2). The Ease of Use aspect after being averaged is 4.52 with a very good category and 90.30% is obtained so that it is included in the very feasible criteria (3). The attractiveness aspect of the appearance after being averaged is 3.88 with a very good category and 77.60% is obtained so that it is included in the appropriate criteria, and (4). Aspects of Functionality/Usefulness after being averaged is 4.52 with a very good category and 90.30% is obtained so that it is included in the very feasible criteria, this shows that the interactive multimedia developed is theoretically feasible, thus the quality of interactive multimedia in terms of content feasibility aspects, according to material experts, media experts, and biology teachers, it has a very good category. The same research was also conducted by Yanti et al., (2014) in Rafman, et al (2018) regarding Character-Based Interactive Media on Human Circulatory System Material for SMA that was developed is very valid and very practical to be used and utilized in the teaching and learning process.

Evaluation Stage

The Gain Learning

Outcomesresults of the analysis of the normalized gain index in the experimental class show the low category 0 students (0%), the number of students belonging to the medium category are 11 students (31%) and those included in the high category as many as 25 students (69%). The increase in the average normalized gain index from pretest to posttest is 0.73 with a high category. While the gain in the control class showed a low category of 8 students (22%), the medium category was 21 (58%) and those who got the high category were 7 students (19%). The increase in the average normalized gain index from pretest to posttest is 0.49 in the high category.

Judging from the results of the N-gain test, the development of interactive virtual learning media smart Human Excretory system based on articulate storyline 3 on the excretory system material in humans in this study was able to improve student learning outcomes and student motivation in learning specifically in distance learning so that it was conducive and effective. Agree with Ahmad Idzhar (2016:227) in Endang, M (2011) Motivation is defined as the power that drives someone to do something. Motivation can be said as a driving force from within the subject. Teachers need to foster students' learning motivation to obtain optimal learning outcomes in order to achieve a certain goal.

Based on the results of the N-gain test, the increase in student learning outcomes the average normalized gain index from pretest to posttest is 0.73 in the high category and t count > t table and the significant value is less than 0.05 then H0 is rejected and Ha is accepted. then the experimental class learning outcomes with the control class there is a significant difference. Thus the Development of Virtual Learning Media Smart Human Ecxretory System Based on Articulate Storyline 3 can improve student learning outcomes on the material of the human excretory system. This is in accordance with research by Apin Nasifah Yasin (2017) on the success of using interactive multimedia learning media in learning as proven in research involving the development of Articulate Storylines on the subject of anatomy that has succeeded in influencing student involvement and making its use more accessible. Another research result is Triyanti's (2015) research in Deni, S (2020). 13 which shows that interactive multimedia developed on the Nervous System material is suitable for use in biology learning.

Normalitiy Test

The results of the normality test in the test of normality table above the experimental class learning outcomes data show a significant value in the Shapiro-Wilk test, a significant value of 0.626. Therefore, the significant value is above 0.05. Then the experimental class learning outcomes data are normally distributed. The normality test of the control class learning outcomes showed a significant value in the Shapiro Wilk test which showed a significant value of 0.206. Because the significant value is above 0.05. Then the control class learning outcomes data are normally distributed.

Homogeneity The Test

Table of Lavene Test homogeneity test results below, shows the significance level or probability value is below 0.05, so H0 is accepted, meaning that the data is not homogeneous.

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Table 1. *Test of Homogeneity of Variances*

Hasil belajar			
L evene Statistic	f1	f2	Sig.
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Test Based on the homogeneity test, it shows that the data is not homogeneous, so the decision is taken from the Equal variances not assumed line. In the Equal variances not assumed line, the t-test value is 5.666 and significant is 0.000. Because t count > t table and the significant value is less than 0.05, then H0 is rejected and Ha is accepted, so there is a significant difference between the experimental class and the control class learning outcomes.

Based on the results of the analysis of the attractiveness of students' responses to the interactive virtual learning media smart Human Excretory system based on articulate storyline 3, it was obtained data that students had a good response to learning using this interactive media, this was from the results of student responses to media applications carried out online in class VIII G as many as 36 students. The result can be seen that all questions get "Positive Responses" as seen from the student responses in theresponse questionnaires interesting
that cover several aspects, where almost every aspect has a good response. Agree with the results of research that has been carried out by Rianto (2020), stating that the results of student responses to interactive media based on articulate storyline 3. The results can be seen that all questions get "Positive Responses" with a percentage of 87%, Development of interactive multimedia applications using the ADDIE model development model , declared very feasible.

Based on the results of the analysis on the research on the functioning of the virtual smart human excretory system learning media in science learning the human excretory system material in this study was observed from the results of observations in three stages, namely in the preliminary, core and closing stages, what was observed was student activities on the functioning of the media. in learning. According to Sagala in Candra Utama (2017) all teaching components must be played optimally in order to achieve the learning objectives that have been formulated before learning is carried out. In order for the learning process to take place well, the teacher must design the learning to be carried out, especially to determine the learning steps that are in accordance with the characteristics of the material to be taught and make indicators to determine whether the learning that has been designed can run effectively or not.

CONCLUSION

The virtual smart human excretory system interactive learning media based on the articulate storyline 3 on the excretory system material is feasible to use because it can improve student learning outcomes towards classroom learning. pretest to posttest is 0.70 high category and learning outcomes are 0.73 and the level of functioning of the virtual smart human excretory system learning media is at the functioning level with a very effective category.

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