

## Development of Medium of Learning Website about Human Waste Determination System on Skin Process Skins in Class V Elementary School

Wahyu Ajeng Sarastika<sup>1\*</sup>, Agung Purwanto<sup>2</sup>, Robinson Situmorang<sup>3</sup>

Universitas Negeri Jakarta, Indonesia

### \*Corresponding author

Wahyu Ajeng Sarastika

### Article History

Received: 01.08.2018

Accepted: 09.08.2018

Published: 30.08.2018

### DOI:

10.21276/sjhss.2018.3.8.4



**Abstract:** This study aims to determine the improvement Skills Process of Science after developing science-learning media about human waste-based digestive systems. The research was conducted at SDN Kapuk 02. This research used R & D research method which refers to Dick and Carey model. Respondents in this study consisted of expert test (media, language, and material), *one to one*, testtrial *small group*, and test *fieldtest*. The results of the development of Torso Digestive System Human assessed by media experts ie 88.3%, material experts 90%, and linguists 93.3%. The next stage of Human Digestive System Media performedtrial *one to one* with 89% product feasibility, trial *small group* with 90.1% product feasibility, and *field test* with 90.4% feasibility. Assessment made into the category is very good. PPP in this research was conducted by classroom teachers. Classroom teachers conduct assessments before and after media use. At the time before using the Human Digestive System media, the student's KPS earned an average of 68.7%, after using Human digestive System media has increased to 89.5%. This indicates that the Human digestive system media improves student's KPS until it reaches the completeness criteria. Thus the media of Human Digestive System has effectiveness to the student's KPS.

**Keywords:** Skills of science process, development of science learning media about human digestive system.

## INTRODUCTION

Learning activities is a design created by educators in the learning process. Learning activities deliberately made to achieve learning objectives. Learners are considered to meet the learning objectives if the learning outcomes have reached the determined KKM ased on the facts in the field, students still have difficulty in reaching KKM. The factor that becomes difficult the learner reaches KKM is the level of difficulty of material about Human Digestive System. This is because the Human Digestive System is an abstract science subject. Learners have difficulty in understanding the subjects presented.

Learners at the primary school level are children who are at concrete operational stage. It shows that there is a real need that is present in the classroom. One way that can be done to overcome the problem is with the use of learning media. Agung in the Journal of Research on Chemistry Education stated that learning media is media used as a tool and learning activity materials used by educators to assist in conveying material and facilitate learners to be able to understand the material presented by educator. One of the media that has been there to assist educators in conveying science materials on Human Digestive System in Class V SD is Torso Human Digestive System. Torso is a

model of human sculpture equipped with components of human organs, both shape and location. With the torso of the human digestive system, learners will see concretely the parts of the human digestive organs. However, this human digestive torso has a deficiency that does not explain how the human digestive system takes place. Therefore, learners will only easily understand the organs that play a role and difficult to understand the system that occurs in the human digestive system.

Based on the lack of torso of human digestive system, the researcher develops the existing learning media. The development of instructional media is emphasized by using the tools and materials are cheap and as much as possible using the materials used to make the cost of production is not too expensive and can use the waste into a more useful goods. Widiyatmoko in IPA Indonesia Educational Journal proclaimed household waste and used materials can also be used.

Learning media digestive system developed will explain how the system that occurs in human digestion. This learning medium will be specially designed to be accessed by an object as a food sample. Not only will that, in every organ of his body have its usefulness

accordingly. Thus, through the development of this learning media learners will see concretely the human digestive system. The media of the human digestive system will also be equipped by the card. This card contains the name of the organ and its usefulness. In addition this card will be used as a tool for learners to find out the answer if you have trouble.

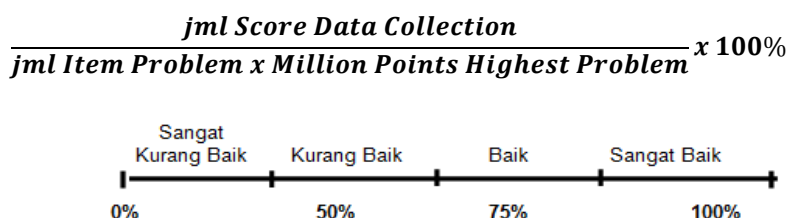
Learning outcomes are expected not only on the satisfaction of the concept (knowledge) but also on the aspects of Skills Process of Science (KPS). KPS according to Nursery in Journal of Biology Education is a teaching and learning process designed so that students can find facts, concepts, and theories with process skills owned and scientific attitude of the students themselves. Yayan in the Journal of Research and Chemical Practice stated that one of the learning methods that can equip student's KPS is practicum. Thus the Human digestive system media will be used as a practicum tool of learners.

The PPE indicators according to Cony (2012) include observing, grouping, interpreting, forecasting, asking questions, formulating hypotheses, planning experiments, using tools, applying concepts, communicating. Used in research, ie, observing, planning experiments, conducting experiments, collecting and analyzing data, communicating. This research was conducted to measure the feasibility of science learning media about waste-based human digestive system to science process skill in Class V SD.

## METHODOLOGY

Method used in this research is *Research and Development* (R & D). In this study, researchers used Dick and Carey's action research model. This is because according to the researcher this model fits with the purpose of research that will be done. This model uses the basic components, namely analysis, design, development, implementation, and evaluation. Validation is done by expert review. This expert study aims to determine the feasibility of learning media in order to be tested on larger respondents. Expert review in this study was conducted by three experts namely, media experts, material experts, and linguists. These experts will examine the learning media that has been developed and will provide input for improvement. The next stage is formative evaluation by the user. At this stage it is done in three stages: individual trials, small group trials, and large group trials.

Data analysis techniques used, namely qualitative descriptive analysis techniques and quantitative descriptive analysis techniques. Qualitative descriptive analysis technique used to process data of expert test result, student test of respondent, and observation skill of science process. Meanwhile, quantitative descriptive analysis techniques used to process data obtained from the questionnaire in the form of descriptive percentage and learning outcomes of learners. Analysis of expert assessment, teacher and student responses, and observation of PPP and students' scientific attitude were analyzed by using criteria of calculation of test result that is:



The instrument used to test the feasibility of the model developed is using questionnaire data. This questionnaire data was obtained from expert test (material, media, and language), respondents (individual, small group, and large group), and science process skills were analyzed by calculating value based on Likert Scale with maximum value 5. Researchers developed success criteria to be interval scale data to be adjusted to the needs of research in the field, namely:

The success indicators of this study is based on the achievement of indicators, namely KPS. KPS is said to be achieved if the percentage results in every aspect of PPP by keseluruhan reaches an average of  $\geq 70\%$ .

## RESULTS AND DISCUSSION

### Expert Test Results Experts

Test media conducted with lecturers who are considered experts in media development. Expert test media conducted to assess the quality and feasibility of the media. The media experts in this study were evaluated by lecturers at state univer namely Erry Utomo, P.hD. Expert material by lecturers at UNJ Ishak Gerdd Bachtiar, S.Si, M.Pd. The linguists in this study were evaluated by lecturers at UNJ. Gusti Yarmi, M.Pd. The results of media validation of Human Digestive System as follows:

**Table-1: Experts expert response results**

No	Expert Expert	Values	Criteria
1	Media	88.3%	Very Good
2	Materials	90%	Very Good
3	Language	93.3%	Very Good
Average		90.5	Very Good

Based on Table 1 the results of the three experts of the Human digestive System media get an average of 90.5%. All ratings fall into the "Very Good" category and are eligible for trial.

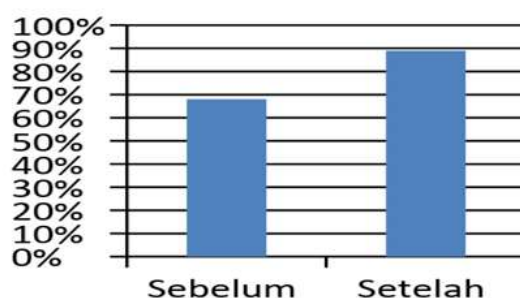
### Respondent Test Results

The next stage after declared eligible by experts, the Media of the Human Digestive System in the trial by learners. Media The human digestive system is tested by 5 respondents (test *one to one*) with 90% product feasibility. Next Torso Human Digestive System was tested to 15 respondents (trial *small group*) with product feasibility 90.1%. The last test is *field test* with 90.4% eligibility. Assessment of respondents into

the category of "Very Good". This shows the development that the human digestive system media has a practicality and can be used in science learning activities.

### The effectiveness of learning media

KPS in this study was conducted during *field test trials*. The trial involved 25 students. These trials are conducted by educators. The study was conducted by observing the students who were using the media. Observations were made twice, ie before and after using the Human Digestive System media. Following the results of the student's KPS:


**Fig-1: Comparison of student PPP**

Based on Figure 1, there is a difference in average PPE of learners. Before using Human digestion System media the average score of learners is 68% who are in the "Good" category but have not reached the criteria mastery. As for after using Human digestion System media the average value of learners to 89% and is in the category of "Very Good". PPP learners have improved after using Human digestive System media. Thus the media of Human Digestive System has effectiveness to PPP learners.

### CONCLUSION

Conclusion The development of Torso Human Digestive System is viewed from the aspect of instructional media component, presentation estesis, media usage, curriculum involvement, language usage, display form, and presentation form. Torso Human Digestive System is assessed by media experts with a product feasibility of 88.3%, material experts with 90% eligibility and a language expert with 93.3% eligibility. All ratings fall into the "Very Good" category.

The next stage of Human Digestive System Media is assessed by 5 respondents (test *one to one*)

with a 90% product feasibility. Next Torso Human Digestive System was tested to 15 respondents (trial *small group*) with product feasibility 90.1%. The last test is *field test* with 90.4% eligibility. Assessment of respondents into the category of "Very Good". Human digestive system media has good effectiveness in improving learning outcomes and PPC (Skills Process Science) learners. This is known after the held *pretest and posttest* in the study. From the results of *pretest* known learning outcomes learners have an average of 60.4% and have not reached the criteria mastery. However, after using the learning media has increased to 80.4% which has reached the criteria mastery.

Similarly, KPS learners. Before using Human digestive System media the average score of learners is 68.7% who are in the "Good" category but have not reached the criteria mastery. As for after using Human digestion System media the average value of learners to 89.5% and is in the category of "Very Good". This indicates that the Human digestive system media improves students' KPS until it reaches the completeness criteria. Thus the media of Human Digestive System has effectiveness to PPP learners.

## REFERENCES

1. Desmita & Suryantini, H. (2005). Karakteristik Individual Dan Persepsi Peneliti Terhadap Sumber Daya Perpustakaan & Hubungannya Dengan Pemanfaatan Koleksi. *Jurnal Perpustakaan Pertanian*, 14(1), 1-9.
2. Nurhemy, T., Slamet S., Rizky, M., (2018). *Active Learning Implementation with Silent Demonstration to Improve Skills of Science Process of Grade VIII Students D Smp Negeri 14 Surakarta*. Journal of Biology Education. Vol 3: 61-71.
3. Purwanto, A., Mian Riskiono. (2011). *Development of Constecent-Based Teaching Materials on Buffer Material as Learning Media of SMA IPA Class XI*. Journal of Chemical Education Research. 1(1).
4. Semiawan, C. R. (2008). *Small Note on Development Education*. Jakarta: Kencana.
5. Semiawan, C. R. (1985). *Approach Process Skills*. Jakarta: Gramedia.
6. Sunarya, Y., Kurnia., Meli S. (2013). *Improvement Skills of Science Process of High School Students through Inquiry-Based Practical Learning on Reaction Rate material*. Journal of Research and Practice of Chemistry Education. Vol 1 (1).
7. Widiyatmoko, A., Haryani, S., Hari, D. (2015). *Project Based Learning for Developing Ipa Display Tools Utilizing Used Materials*. Jurnal Pendidikan IPA Indonesia.