Feasibility of Human Anatomy and Physiology Textbook for Topic The Digestive System and Circulatory System based on Science Literature

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Abstract. Study aims to analyze the feasibility of textbooks on anatomy and physiology of the human body on the topic of the digestive system and circulation system based on scientific literacy. The tests carried out lead to the feasibility test of textbooks that will be used by students. This research is a descriptive study that aims to explain how the feasibility of the textbook developed. The subject of this research is all material on anatomy and physiology of the human body. The samples of this research are 2 topics of material that are difficult to understand, namely the digestive system and the circulatory system. Samples were taken by purposive sampling technique. The textbook developed is the book used by students in the course. Data is taken using an instrument sheet containing indicators that are adjusted to the expertise of the validator, which is then interpreted in the form of percentages for indicators. The results of the material expert team's assessment showed that they were in the very good category with an average percentage of 92% (very good), design experts 96.42% (very good) so it can be concluded that the research product of the development of the Anatomy and Physiology Textbook of the Human Body on the Topic System The Digestive and Circulatory System Based on Scientific Literacy that was developed according to experts is appropriate to be used as a textbook in the Anatomy and Physiology course of the Human Body.

Keywords: Science Literacy, Textbooks, Anatomy and Physiology of the Human Body

1 Introduction

Education in the Industrial Revolution Era 4.0 is a phenomenon that responds to the needs of the industrial revolution by adjusting the new curriculum according to the current situation. Universities are required to graduate students who have the ability to adapt to changes that are increasing occurring. Factors that are able to support the realization of improving the quality of education, one of which is the ability for Liliasari (2011) states that science education produces quality students who are shown to be scientifically aware (scientific literacy), have values, and have high-level thinking skills which will later lead to human resources who can think. critically, think creatively, make decisions and solve problems.

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Scientific literacy according to the Organization for Economic Cooperation and Development (OECD) (2013) is defined as the ability to use scientific knowledge, identify questions and draw conclusions based on facts to understand the universe and make decisions from changes that occur due to human activities . A person is said to have scientific literacy skills, namely those who are able to use scientific concepts and scientific process skills to make decisions related to everyday life, other people, society, and the environment, including social and economic development (Arohman, 2016) .

One of the factors that can support the improvement of the quality of education is the existence of teaching materials that act as the main reference that can direct learning activities appropriately so that learning will become more focused and learning objectives can be achieved optimally. Teaching materials are materials used to assist lecturers/teachers in carrying out learning activities. In this case, the teaching materials in question can be in the form of textbooks based on scientific literacy.

The components in science literacy textbooks are (1) Science knowledge (a body of knowledge) category that displays facts, principles, laws, theories, and so on, (2) The nature of scientific inquiry (way of investigation) this reflects aspects of inquiry and active learning, classifying, drawing conclusions, recording data, performing calculations, conducting experiments, and so on, (3) Science as a way of thinking (way of thinking) this category provides an overview of science in general, especially in conducting investigations, the nature of science represents the process of thinking, reasoning, and reflecting when students talk about ongoing scientific activities, (4) The interaction of science, technology, and society (interaction of science technology and society) this aspect provides an overview of the influence or impact of science towards society.

Based on this description, science learning is not only focused on mastering science content but must also involve mastering the context and process of science. Quality learning in accordance with the expected curriculum, supported by the existence of learning resources that contain curriculum objectives, one of which is mastery of scientific literacy both mastery of content, context, and science processes.

2 Methods

This research is a descriptive study that aims to determine the results of expert validation and layout design experts and to find out the responses of subject lecturers to textbooks developed as learning resources for UNIMED biology education students. The subject of this research is all material about the anatomy and physiology of the human body. And the samples in the study were 2 topics, namely the digestive system and the circulatory system. The digestive system and circulatory system material is interesting material and includes material that is difficult to understand. Samples were taken by purposive sampling technique. The instrument used in this study uses 2 instruments that will be filled in by the validator, namely an analysis sheet containing indicators that are adjusted to the validator's expertise.

The data collection techniques used are:

1. Phase I: At this stage, a literature study on scientific literacy and textbooks is carried out as well as compiling instrument indicators for scientific literacy categories that will be used to analyze textbooks by material expert validators. As well as compiling instrument indicators for

the feasibility of layout design according to BSNP standards that will be used by expert layout design validators.

2. Stage II: At this stage what will be done are:

a. The material expert validator analyzes the scientific literacy category indicators on the material on the digestive system and circulation system in the textbook.

b. The layout design expert validator analyzes the indicators for the suitability of the layout design category with the BSNP standard in the textbook.

3. Stage III: This stage is the final stage, namely:

a. Processing the results of validation data by material experts by calculating the number and percentage of the emergence of scientific literacy indicators on the material of the digestive system, and the circulation system in the textbook.

b. Processing the results of validation data by layout design by calculating the number and percentage of the suitability of the book design with the writing standards in the textbook.

c. Describe descriptively the results of the analysis based on the data that has been processed.

3 Results and Discussion

Based on the results of the analysis that has been carried out, the percentage of the feasibility of human anatomy and visiology textbooks based on material experts on the components of scientific literacy shows that of the 4 categories one of them is in the very good category with a score of 85-97% which can be seen in the following graph.

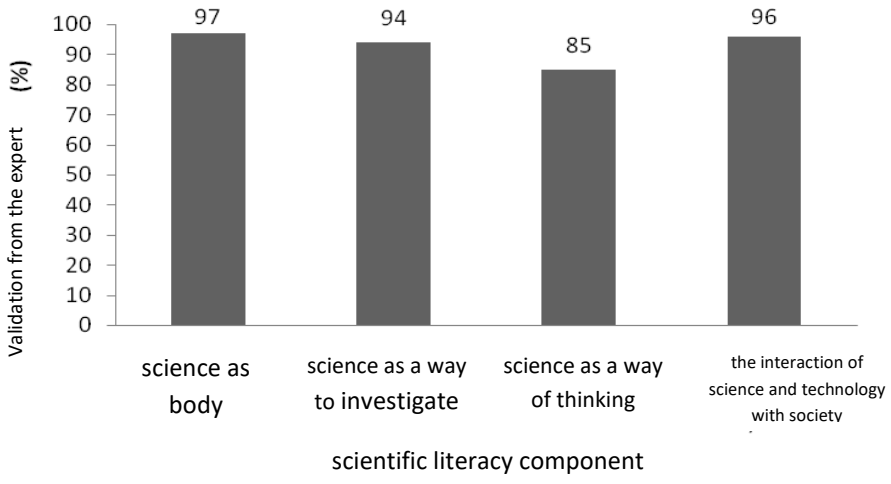

Fig. 1 Material Expert Validation

Looking at the graph above, it is known that from the four categories of scientific literacy indicators found in books, the most frequent occurrences are in the aspect of science as a body with a percentage of 97%, then for the second highest value, namely in the aspect of the interaction between science and technology with society with a percentage value. 96%, followed by scientific indicators as a way to investigate 94%, and the last one is science indicators as a way to think the percentage is 85%. Overall, it can be concluded that the material expert's assessment of the scientific literacy component is in the "very good" category, namely 93%.

For the percentage of the feasibility of textbooks based on BSNP standards that have been assessed by layout design experts, the percentage of the results of the validation of the design of teaching materials is concluded that the design of teaching materials for Anatomy and Physiology of the Human Body Based on Science Literacy is in the "Very Good" criteria, with an average percentage of 96.42% which can be seen in the graph below.

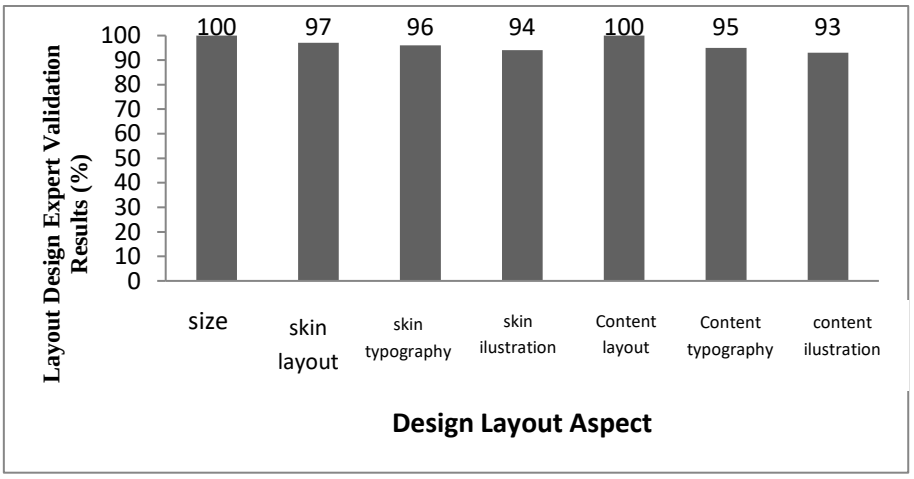

Fig. 2 Layout Design Expert Validation Results

In theory, there is no provision that stipules that only books that are suitable for use must have a more dominant composition of scientific literacy than other categories. However, in this case, it is feared that students will be less developed in building their own knowledge and will be lacking in knowledge of scientific phenomena. Therefore, it is important to develop textbooks that meet the aspects of scientific literacy in order to build students' abilities in scientific literacy.

4 Conlusion

In this study it can be concluded that the results of the validation of the suitability of the material with aspects of scientific literacy by material experts as a whole are in the very good category with an average percentage of 93%. In addition, the feasibility of the layout design for the presentation of the developed human anatomy and physiology teaching materials, as a whole, is

included in the very good category with an average percentage of 96.42% so that it can be accepted and suitable for use in the learning process.

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