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Development of Blood Circular System E-Module Human Based on Science Assisted Flip Pdf Professionals for Improving Concept Understanding Class V Elementary Students

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Abstract: The research objectives: 1) analyze needs, 2) design e-module development products, and 3) analyze the effectiveness of scientific-based human circulatory system e-modules assisted by Flip Pdf Professional to improve understanding of concepts for a fifth-grade elementary school in Gugus Gajah Mada, Kradenan District, Grobogan Regency. Development research (R&D) uses the Sugiyono development model with 10 development steps. The product is in the form of an e-module for the human circulatory system. The research subjects were fifth-grade elementary school students in the Gajah Mada Group, Kradenan District, Grobogan Regency. Collecting data using interviews, questionnaires, expert validation sheets, and tests. Needs data were analyzed by qualitative description. The products developed are tested for feasibility by media, language, and material experts. The effectiveness of the e-module was analyzed by statistical analysis of the Independent Samples Test with a significance level of <0.05 . The results of the needs analysis, students and teachers need the products developed in this study. Product development design is carried out with the planning, drafting, and evaluation stages. An overall average score of media, language, and materials expert validation consecutively is 92.9%; 94.4%; 95.4%; and all three are included in the "Very Eligible" criteria. Feasibility is also supported by the results of student and teacher questionnaire responses which show an average score of 76.67% and 86.67% with the criteria of "Good" and "Very Good". The product developed was also proven to be effective in increasing the understanding of the concepts of fifth-grade elementary school students in the Gajah Mada Group, Kradenan District, Grobogan Regency based on the results of the Independent Samples Test <0.05 , i.e 0.000.

Keywords: E-module, flip pdf professional, concept understanding, scientific, circulation system human blood

1. Introduction

The advancement of technology and information development requires teachers to be able to use learning media. Several concepts in science material require a certain understanding, so it is difficult for students to understand. 5th Grade Elementary School Teachers generally still use simple learning media, with markers and whiteboards.

Submission of material only uses textbooks obtained from the government so it does not according to the characteristics of students (visual, audio, and audio-visual students) so there are often misunderstandings between educators and students in understanding the concepts taught. Teachers often give assignments according to the textbooks and worksheets. Learning outcomes students under the minimum completeness criteria. According to Harun et al. (2021), learning media is everything that can transmit messages, can stimulate the mind, feelings, and willingness of students so that they can encourage the creation of a learning process in students themselves. This is also supported by the opinion of Azizah et al. (2022), that learning media can be used to channel the sender's message to the recipient and learning media can also help students to explain something that is delivered by educators.

The use of learning media in the learning process has a good impact on students. This is supported by the results of Istiqlal's research (2018) where media learning can facilitate the process of interaction between lecturers and

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students and help students learn optimally, learning media can improve student learning outcomes in a madrasa (Baharun, 2016), as well as learning media, can improve student learning outcomes (Rinaldi, Daryati, & Arthur, 2017).

2. Literature Review

Development is a scientific and technological activity that aims to take advantage of scientific principles and theories that have been proven to be true to improve the functions, benefits, and applications of existing science and technology, or produce new technology (Alexander et al., 2012). According to the Law of the Republic of Indonesia Number 18 of 2002, development is a scientific and technological activity that aims to utilize scientific principles and theories that have been proven to be true to improve the functions, benefits, and applications of existing science and technology, or to produce new technologies. Development generally means a pattern of growth, slow (evolution), and gradual change (Indonesia, 2002).

Pieterse (2010) explained that development is a process of translating design specifications into physical form. There is a relationship complex relationship between technology and theory that drives message design and strategy learning. Development can be described or tested by 1) message content-driven, and 2) theory-driven learning strategies. And manifestations Physical technology can be in the form of hardware, software, and learning materials. Learning media is an integral component of the learning system (Mabruri, Ahmadi, & Suminar, 2019). Learning media is anything that can transmit messages, that can stimulate the thoughts, feelings, and willingness of students so that they can encourage the creation of the learning process and teach students themselves. According to Cusack & O'Donoghue (2012), modules are study materials that are specially prepared and systematically designed based on a certain curriculum that is packaged into the smallest learning unit (modular) which can be used independently by learners to achieve the learning objectives specified. The e-module is a form of presentation of learning materials independently arranged systematically into certain learning units, which are presented in electronic format, where every learning activity in it is linked by a link as navigation that makes students more interactive with the program, equipped with the presentation of video tutorials, animations, and audio to enrich the experience study. Suryani, Rusilowati, & Wardono (2016), state that students' understanding of concepts is one form of learning outcomes obtained by students through learning. Module Electronic learning is a learning resource that contains materials, methods, limitations, and methods evaluation which is designed systematically and attractively to achieve the appropriate competence with difficulties electronically. E-modules are designed according to the curriculum and made in the form of non-printed teaching materials with displays using electronic devices such as computers or android. E-modules are self-instructional learning media that only contain one learning material (Laili et al, 2019). E-Modules are independent learning materials systematically designed and presented in an electronic format that is linked to link (Belia, Utaminingsih, & Pratama, 2022) Electronic modules (e-modules) are the right choice to facilitate teachers and students in using Information and Communication Technology (ICT) useful and support the teaching and learning process. Electronic modules (e-modules) are modules in an electronic version where access and use are done through electronic means such as a computer, laptop, tablet, or even a smartphone. The text on the e-module can be typed using Microsoft Word and then converted into pdf form and displayed in special e-book programs such as Flipbook Maker (Prihatiningtyas & Alimah, 2020).

An electronic module is a form of self-study material that is systematically arranged and displayed in an electronic format, which includes audio, animation, and navigation. Applications that can be used to create e-modules include exe. learning (Agustin & Pratama, 2020), Flip Pdf Professional (Seruni et al, 2019), 3D Page Flip Professional (Ferdianto & Nurulfatwa, 2019), and Kvisoft Flipbook Maker (Wibowo & Pratiwi, 2018). According to Yulando, Sutopo, & Franklin Chi (2019), electronic modules can be used as a learning resource independently, to focus more on the development of one material, this e-module is adapted based on needs analysis and taking into account the developer's capabilities, and adjust to the selection of possible programs and the level of convenience in implementation (Linda, Sulistya, & Putra, 2018). Teaching materials are all forms of materials that contain learning materials that can be used to assist teachers/instructors in carrying out teaching and learning activities when directly or indirectly. Examples of teaching materials include books, modules, interactive media, electronics modules (e-modules), etc. Electronic modules (e-modules) are a form of modules digitalized and packaged more interactively. Electronic modules are also called media for self-study because it includes instructions for self-study. Electronic modules can be filled with material in the form of pdf, video, and animation that can make the user learn actively. The electronic module is a display of information in the format of a book that is presented electronically using a hard disk, diskette, Compact Disk (CD), or flash and can be read using a computer or a book reader electronic modules can also be interpreted as learning tools or facilities that contain materials, methods, limitations, and methods of evaluating that are designed systematically and interesting to achieve the expected competence according to the level of complexity electronically. E-module is a set of digital or non-print teaching media that is systematically arranged and used for independent learning purposes so that it demands students to learn to solve problems in their way (Prihatiningtyas & Alimah, 2020).

Hosnan (2014) explains that the implementation of the 2013 Curriculum in learning with a scientific approach is a learning process designed in such a way that students actively construct concepts, laws, or principles through stages observing stages (to identify or find problems), formulate problems, propose or formulate hypotheses, collect data using various techniques, analyze data, draw conclusions and communicate concepts, laws or principles "found". The

scientific approach has learning steps that include action, observing, questioning, gathering information, associating, and communicating. Suryani et al. (2016), that students' understanding of concepts is one form of learning outcomes obtained by students through learning. The student said to understand the concept if it can understand and understand something from many angles. Students can explain or provide a more detailed description detail about it using their own words.

The human circulatory system is a closed and double circulatory system. It is called a closed circulatory system because blood always passes through blood vessels. It is called a double circulatory system because blood enters the heart twice in one go of blood circulation. Double circulation consists of small blood circulation and blood circulation big (Gnidovec et al, 2020).

3. Methodology

This research uses the Research and Development (R&D) model by Sugiyono. Sugiyono's (2015) development steps are 1) potential and problems, 2) data collection, 3) product design, 4) design validation, 5) design revision, 6) product trial, 7) product revision, 8) trial use, 9) product revision, and (10) mass production. Departing from the potential and problems the researchers analyzed the needs of schools, teachers, and students. Next collecting information for the expected product planning materials can solve the problem. The next step in making a product development design includes defining the product title, product specifications designed with Canva application, Flip Pdf Professional, as well as HTML format. Preparing materials, compiling, and making e-modules. The next stage is product validation and product testing. Jolley et al. (2015) that data is the result of recording research in the form of facts and figures. Data are all facts and figures that can be used as material for compiling information. The data in this development are data on the need, validity, and effectiveness of the e-module.

The population is a generalized region that consists of objects/subjects that have certain qualities and characteristics set by the researcher to be studied and then conclusions are drawn (Sugiyono, 2015). The population of this study was students and teachers of class V Elementary Schools for the 2021/2022 Academic Year in the Gajah Mada Cluster, Kradenan District, Regency Grobogan, which consists of 10 elementary schools. The sample is part of the number and characteristics possessed by the population (Sugiyono, 2015).

The sample of this research is the fifth-grade students of Public Elementary School No. 1 Kuwu totalling 36 people as an experimental class and class V Public Elementary School No. 2 Kuwu totalling 25 people as a class control. The reason for the researcher in selecting the sample of the trial subject is based on several factors namely: subject equality, teacher quality, school quality, and the existence of a comprehensive needs analysis identified. Development research is carried out in the even semester of the school year 2021/2022. Data were obtained from students, teachers, and experts/experts. Students as data sources are used to obtain information regarding the need for e-module media and to test the effectiveness of e-modules scientifically based circulatory systems. Teachers as data sources to obtain information regarding the need for e-modules and as peer test informants before the product is tested. Expert/expert data sources are information or data sources that come from experts, in this case, the lecturer of Master's Degree from Muria Kudus University and the Achievement and Dedicated Teacher Grobogan Regency 2019.

The types of data collected in this study came from data analysis of media development needs, validation, and effectiveness data. First, data needs analysis development of student and teacher media, Second, data on the validity of the development of e-module media from the results of expert validation by providing input for the improvement of the e-module before being tested. Third, quantitative e-module effectiveness data obtained from the comparison of test scores/results in the experimental class with the control class showed an increase in students' understanding, more than 80% of students completed individually with minimum completeness criteria is 75. Data collection techniques use interviews, giving questionnaires, documentation, and tests. The test carried out is an initial test/pretest and a final test/posttest. The pre-test was carried out to find out the initial learning outcomes of class V student's human circulatory system before the treatment and the final test to find out the effectiveness of the e-module by using a two-sample t-test or comparing control classes which remain given direct learning with a treated experimental class. The research instrument was used to measure the value of the variables studied. Therefore, the number of instruments to be used for research will depend on the number of variables studied (Sugiyono, 2015).

Two main things affect the quality of research results, namely the quality of research instruments and the quality of data collection (Sugiyono, 2015). Research is necessary to use appropriate data collection techniques because data collection techniques are the most important step in conducting research. Without knowing the collection technique data, the researcher will not get data that meets the established standards. The research instruments include interview guides for the rest and teachers, a needs questionnaire for students and teachers, student and teacher response questionnaires, expert validation instruments, namely media experts, language, material, and instrument questions. test. To find out whether the sample from the population data is normal and homogeneous, then the prerequisite test is carried out, namely the normality test and homogeneity test.

The normality test was carried out as a prerequisite test used to determine whether sample data from the population data are normally distributed or not. Normal distribution data then parametric statistical tests are carried out, while data that are not normally distributed will nonparametric statistical tests were performed. Testing the normality of the data in this study using software Data that are normally distributed are then tested for parametric statistics, while

data that are not normally distributed will be subjected to nonparametric statistical tests. Data processing using the SPSS version 23 program with a significance of 0.05., with the Shapiro Wilk test. Ha: the sample comes from a normally distributed population. H0: the sample does not come from the population normally distributed. If the significance value is > 0.05 , then Ha is accepted and H0 is rejected, meaning the data is normally distributed, on the other hand, if the significance value is < 0.05 then Ha is rejected and H0 accepted, or the data is not normally distributed.

The homogeneity test is a prerequisite test that aims to find out whether the object studied has the same variance. The homogeneity test used in this study using Statistical Product and Service Solutions (SPSS) software version 23 with a value of 0.05 significance. Using Levene's test. Ha = the variance in each group is the same (homogeneous).

H0 = variance in each group is not the same (not homogeneous). If the significance value > 0.05 then Ha is accepted and H0 is rejected, meaning that the data comes from a homogeneous population, otherwise if the significance value < 0.05 then Ha is rejected and H0 is accepted or the data comes from the inhomogeneous population. Jolley et al. (2015), validity is a measure that indicates the level of validity or validity of an instrument. To test the validity of the test questions description with the product moment formula. The calculated r value is then compared with the r table. If r count r-table then the item is valid, if r-count $<$ r table means invalid. Jolley et al. (2015), reliability is an instrument that is used as a data collection tool. To test the reliability can be done with the formula Spearman-Brown, the calculated r obtained was compared with the r table with a significant level of 5%. If r-count $>$ r-table then it is declared reliable and vice versa is declared unreliable. The difficulty level of the item is the quantity used to state whether an item's questions are included in the easy, medium, and difficult categories. Analysis can be done manually as well as using the SPSS statistical application. The results of the instrument analysis show that there are several criteria for easy, medium, and difficult questions used in the study. Jolley et al. (2015), the distinguishing power of questions is the ability of a question to distinguish between high-ability students and low-performing students with low ability. The number indicating the magnitude of the discriminatory power is called the discrimination index (D). The discrimination index ranges from 0.00 to 1.00. To calculate the discriminatory power of the question can calculate using formulas or SPSS applications.

Data analysis includes data analysis of learning media development needs, analysis of design validity test data, and media effectiveness test analysis. Data for needs analysis was obtained from the results of interviews and questionnaires on the needs of students and teachers. Interview results were analyzed by qualitative descriptive technique. Questionnaire data are processed into percentages and analyzed using the descriptive analysis technique. Description of the results of the analysis of the results of the questionnaire was used as a guide for knowing how large the needs of students were teachers on the use of scientific-based human circulatory system e-modules with Flip Pdf Professional developed. The formula is as follows:

$$\% f = \frac{f}{N} \times 100\% \quad (1)$$

Description:

%f = percentage of respondents will

f = frequency of answers from respondents

N = number of respondents

The validity data were analyzed using a quantitative descriptive method by calculating the number of scores obtained from the validation results (questionnaire) through the use of a Likert scale (Sugiyono, 2015) with a table score category in Table 1.

Table 1. Guidelines for scoring expert validation results

Score	Criteria
4	Very Good
3	Good
2	Average
1	Poor

Then the value of each validation criterion is recapitulated divided by the maximum score and multiplied by 00%. The formula for calculating the validity of each criterion is as follows:

$$\text{Validity of each criterion} = \frac{\text{total score for each criterion}}{\text{max score}} \times 100\% \quad (2)$$

The score criteria obtained from the results of the validation calculation can be determined in Table 2.

Table 2. Eligibility/validity level criteria

Average Score (%)	Categories
25-39.9	Invalid
40-54.9	Invalid
55-69.9	Quite Valid
70-84.9	Valid
85-100	Very Valid

The effectiveness of product development is carried out by comparing the average value of the experimental class and control class using a two-sample t-test or independent t-test. The two-sample t-test is 1) the data are normally distributed, 2) both data groups are independent (not related/paired), 3) the type of data used is numeric and categorical (two groups).

This study is to determine the value of the effectiveness of e-module development by using a two-sample t-test independently using the SPSS version 23. The hypothesis is:

Ho = There is no e-module development effectiveness

Ha = There is an e-module development effectiveness

The two sample t-test indicators are:

If the value of sig. > 0.05 then Ha is rejected and Ho is accepted

If the value of sig. < 0.05 then Ha is accepted and Ho is rejected

4. Results and Discussion

The need for a product in the form of an e-module based on the human circulatory system Scientific-assisted Flip Pdf Professional in this case is devoted to improving understanding of the concepts of fifth-grade elementary school students in the Gajah Mada Cluster, Kradenan District, District Grobogan. Data needs were obtained through interviews and the results of filling out a questionnaire. Data needs are sourced from 36 fifth-grade students of Public Elementary School No. 1 Kuwu and the school's fifth-grade teacher.

The average "Yes" answer from the results of filling out the student needs questionnaire showed a result of 82.78%. While the average answer is "Yes" the results of filling out the teacher needs questionnaire show a yield of 90%. Based on the results of interviews and filling out questionnaires, it can be analyzed that the level of the need for scientific-based human circulatory system e-modules is considered quite high so the scientific-based e-module of the human circulatory system is assisted by Flip Pdf Professionals are needed in improving the understanding of concepts for fifth-grade elementary school students in the Elephant Gugus Gajah Mada, Kradenan District, Grobogan Regency.

The e-module development design includes the planning, process, and evaluation stages. Stage planning consists of formulating core competencies, basic competencies, indicators, and objectives, determining the material, preparing a lesson plan, as well as determining the media. Stages of the process of developing e-module media based on scientific, human circulatory system material, scientific-based e-module media begins to create a written storyline, create a design with the Canva app, save a design in Pdf format, combine Pdf designs, insert Pdf designs into the Flip Pdf application Professional, text editing and inserting quizzes and videos, the last process is publishing. The evaluation stage includes assessment by Media Experts, Language Experts, and Materials Experts, the next implementation of small-scale trials, expanded scale, and product revisions.

Feasibility Assessment by three experts a media expert, a linguist, and a material expert. Media Expert Assessment consists of cover design, content design, and presentation aspects an average of 3.7 with a percentage of 92.9 in the "Very Good" category. Linguistics assessment includes aspects of straightforward, communicative, dialogical, and interactive, compatibility with student development, compatibility with the Language Rules obtained an average of 3.78, a percentage of 94.4 in the "Very Good" category.

Material Expert Assessment includes aspects of content feasibility, presentation feasibility, contextual assessment obtained an average of 3.82, a percentage of 95.4 in the "Very Good" category. Expert validators in addition to assessing the feasibility of e-modules based on human circulatory systems scientists also provide suggestions to make the product better. As for advice from Media Experts "It would be even better if it was added to the circulation animation e-module and appropriate media" used." The advice from the Linguist is "It is necessary to improve the writing of words that do not comply with PUEBI and the media is suitable for use." Material Expert Advice is "Need to do improvement of the evaluation questions so that they are by the basic competencies and indicators to be achieved and media deserves to be used in learning."

Thus, based on the results of the assessment of the expert validators, it can be concluded that the Scientific-based human circulatory system e-module assisted by Professional Flip Pdf which was developed to improve the understanding of the concepts of fifth-grade elementary school students is suitable for use in learning.

Limited trials were carried out after the e-module of the human circulatory system was based on Scientific-assisted Flip Pdf Professional developed to improve understanding student concepts are revised according to expert advice. The trial was conducted on 5 fifth-grade students of Public Elementary School No. 1 Kuwu and the fifth-grade teacher of the school. Feasibility assessment at this trial stage using a response questionnaire.

The overall average of the results of the limited trial showed a score of 56.00% and 73.33% with the "Good" criteria, but there are still aspects of the assessment that are lacking. Response questionnaire results from students on aspects of the material contained in the scientific-based e-module of the human circulatory system with the help of Flip Pdf Professional easy to understand showing an average score of 20%, included in the "Poor" criteria. This is the basis for revising the e-module after the trial is limited.

Scientific-assisted human circulatory system e-module Flip Pdf Professional was developed to improve students' understanding of revised concepts based on the results of a limited trial and then tested in the main field (expanded trial) in class V Public Elementary School No. 1 Kuwu. The trial assessment was expanded using student response questionnaires and teachers. Respondents for filling out the questionnaire in this trial were 15 students of class V Public Elementary School No. 1 Kuwu and the fifth-grade teacher of the school.

The average score of the results of filling out student and teacher response questionnaires at the field trial stage main (expanded) shows a score of 76.67% and 86.67% with the criteria of "Good and Very Good", Based on the results of filling out the questionnaire, the e-module of the human circulatory system is based on Scientific-assisted Flip Pdf Professional developed to increase understanding This student concept does not need much improvement. Revisions that need to be done based on the results of filling out the teacher and student response questionnaires after the main field trial stage (expanded) are to improve the existing material so that the e-module of the human circulatory system Scientific-based with the help of Flip Pdf Professional becomes more interesting to learn.

Furthermore, the analysis of the overall average score from the results of filling out the questionnaire was carried out with the responses of students and teachers mentioned above. Percentage of the overall average score of the response questionnaire results students on the use of books developed in the initial 56.00 trial and trial expanded to 76.67 each criterion "Good". The percentage of the overall average score of the questionnaire results in the teacher's response to the use of books developed in the initial trial was 73.33 and the trial expanded to 86.67 for each criterion of "Good" and "Very Good".

The revised result of the scientific-based human circulatory system e-module assisted by Flip Professional pdf based on the results of the main field test then used in the implementation test field. Field implementation tests were carried out to determine the effectiveness of the e-module system scientific-based human blood circulation assisted by Professional Flip Pdf in improving understanding of the concepts of fifth-grade elementary school students in the Gajah Mada Cluster, Kradenan District, District Grobogan. The field implementation test was carried out with the selected experimental class: class V Public Elementary School No. 1 Kuwu with a total of 36 students and class V Public Elementary School No. 2 Kuwu with a total of 25 students as a control class. The data used to measure the effectiveness of the e-module system Scientific-based human blood circulation assisted by Professional Flip Pdf in this study are the pretest and posttest scores of the student's conceptual understanding test.

In the experimental class, learning is carried out using the scientific-based e-module of the human circulatory system with the help of Flip Pdf Professional. The control class conducted direct learning using only books provided by the school and not using scientific-based human circulatory system e-modules.

Table 3. Values of concept understanding tests for experiment class and control class

No.	Class	Mark	
		Before Learning	After Learning
1	Experiment Class	61.78	83.78
2	Control Class	59.72	60.28

The effectiveness of the scientific-based human circulatory system e-module with the help of Flip Professional pdf developed in this study was searched based on the data from the pretest and posttest on understanding the concepts of fifth-grade elementary school students at the Gajah Mada Gugus, Kradenan District for experimental class and control class. The data taken to determine the effectiveness of the product developed must meet the prerequisite tests, namely the normality test and homogeneity test. Test The normality used is the Shapiro Wilk technique with data processing using the Statistical Product and Service Solutions (SPSS 23) program with a significance of 0.05. Test results normality of concept understanding data Sig.0.173 and Sig. 0.515. Based on the results above can it can be seen that the results of the normality test of the pretest data understanding the concept of the material by using Shapiro Wilk's technique showed a significance value of > 0.05 , namely 0.173 and 0.515. With Thus it can be decided that H_0 is accepted and H_a is rejected, meaning that the data is normally distributed. The homogeneity test used is Lave's Test technique with data processing using the Statistical Product and Service Solutions (SPSS 23) program with a significance of 0.05. The results of the data homogeneity test for understanding the concept of Sig. 0.805. Pretest data homogeneity test results understanding of students' concepts by using Lave's Test technique shows the value of significance > 0.05 that is 0.805. Thus, it can be decided that H_a is accepted and H_0 rejected means that the data comes

from a homogeneous population.

T-test (Independent Samples Test) understanding of concepts carried out with the help of the SPSS 23 obtained the results of Sig. (2-tailed) 0.000. Based on these results, it can be seen that the significance value of the t-test Independent Samples Concept understanding test is < 0.05 i. e of 0.000. Therefore, it can be concluded that H_a is accepted and H_o is rejected There in the understanding of students ' concepts among those who follow the lessons using scientific-based human circulatory system e-module assisted by Flip Pdf Professional with students who do not use the e-module of the human circulatory system scientific-based with the help of Flip Pdf Professional. Test the validity of the questions using the SPSS 23 program. The testing technique uses Bivariate Pearson correlation (Product Moment Pearson). This analysis is done by correlating each item's score with a total score. The total score is the sum of all items.

Question items that are significantly correlated with the total score indicate that these items can provide support in revealing what they want to be revealed as valid. If sig. > 0.05 then the instrument or question items have a significant correlation with the total score (stated valid). The results of the validity of the test instrument from 10 items 2 items are not valid. After the validity test was carried out, the reliability test was carried out. A variable is said to be reliable or reliable if the answers to the questions are always consistent. Coefficient The reliability of the instrument is intended to see the consistency of the answers to the statement items that are given by the respondent.

High and low reliability is expressed by a value called coefficient reliability, ranging from 0-1. The reliability coefficient denoted by α is the index of the searched case. Reliability testing using Cronbach's Alpha SPSS Version. Formula 23. The smaller the alpha value, the more items that are not reliable. The standard used is $\alpha > 0.70$ (sufficient reliability). The results of the reliability test of the test items were 0.851. Based on the range of Cronbach's Alpha values means that the conclusion is strong in reliability. The different power tests of this research test instrument used SPSS 23, with the results that see in the attachment. The results of the statistical power difference test are then consulted with the index or different power criteria.

Table 5. Recap of differential power test results of test items

Number of Question	r-count	Criteria	Power of Difference
1	0.908	DP ≥ 0.70	Very good
2	0.451	0.40 \leq DP < 0.70	Well
3	0.249	0.20 \leq DP < 0.40	Enough
4	0.922	DP ≥ 0.70	Very good
5	0.248	0.20 \leq DP < 0.40	Enough
6	0.668	0.40 \leq DP < 0.70	Well
7	0.888	DP ≥ 0.70	Very good
8	0.537	0.40 \leq DP < 0.70	Well
9	0.863	DP ≥ 0.70	Very good
10	0.775	DP ≥ 0.70	Very good

The difficulty level of the item is the quantity used to state whether an item's questions fall into the easy, medium, and difficult categories. The difficulty level is tested using SPSS 23.

Table 6. Difficulty level test results

	Values			Mark			Values			Mark		
N-Valid	36	36	36	36	36	36	36	36	36	36	36	36
Missing	0	0	0	0	0	0	0	0	0	0	0	0
Mean	7.22	3.33	4.72	7.50	5.31	6.50	7.44	5.58	7.06	7.11		

Based on Table 7, the level of difficulty of the items can be known, the teacher can see the extent to which the level of student understanding of the material presented and as a teacher evaluation in knowing questions with the category "easy" to solve and the category "moderate" or "Difficult" to solve.

Table 7. Recap of difficulty level test results

Number of Question	r-count	Difficulty Index	Level of Difficulty
1	0.722	TK > 0.70	Easy
2	0.333	0.30 ≤ TK ≤ 0.70	Intermediate
3	0.472	0.30 ≤ TK ≤ 0.70	Intermediate
4	0.750	TK > 0.70	Easy
5	0.531	0.30 ≤ TK ≤ 0.70	Intermediate
6	0.650	0.30 ≤ TK ≤ 0.70	Intermediate
7	0.744	TK > 0.70	Easy
8	0.558	0.30 ≤ TK ≤ 0.70	Intermediate
9	0.706	TK > 0.70	Easy
10	0.711	TK > 0.70	Easy

5. Conclusion

Based on the results of research and discussion, several conclusions can be conveyed as follows: 1) The average answer of "Yes" on the questionnaire needs of students and teachers is 82.78% and 90.00% prove that the e-module of the human circulatory system is -based Scientific-assisted Flip Pdf Professional is needed by students and teachers to improve understanding of the concepts of fifth-grade elementary school students in the Gajah Mada Cluster, Kradenan District, 2) Rating from media, language, and material expert validators show the results of the assessment with the criteria of "Very" worthy". The results of filling out student and teacher response questionnaires also gave results with the criteria of "Good" and "Very Good". This proves that the e-module of the human circulatory system Scientific based Flip Pdf Professional is worth using to improve understanding of the concepts of fifth-grade elementary school students in the Gajah Mada Cluster, Kradenan District, 3) E-module Scientific-based human circulatory system assisted by Flip Pdf Professional which was developed in this study is effective for increasing the understanding of the concepts of class V. students in Elementary school in the Gajah Mada Cluster, Kradenan District. This is evident from the results of the independent t-test (Independent Samples Test) also proves that there are differences in understanding the concept between classes that follow learning using e-modules of the human circulatory system scientific-based Flip Pdf Professional -assisted with those that do not use e-modules scientific-based human circulatory system assisted by Flip Pdf Professional.

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Conflict of Interest

The authors declare no conflicts of interest.

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