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E-Module Development using Kvisoft Flipbook Maker through the Problem Based Learning Model to Increase Learning Motivation

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ABSTRACT

This study aims to develop e-modules through the Problem Based Learning (PBL) model. The type of this research was development research with the ADDIE model. The trial subjects were students of SMAN 1 Seberida. The research instruments were observation, interview, media expert validation questionnaire, material expert, biology teacher validation, student and student response questionnaire. Qualitative data analysis techniques in the form of qualitative descriptive observations and interviews and presented at the analysis stage, suggestions from media expert validators, materials, biology teachers, student and student responses were carried out descriptively and qualitatively and presented in the development stage. While the score of the biology teacher validation questionnaire was carried out using Descriptive statistics by presenting data through tables. The validation results of media experts, material experts and biology teachers on the e-module were 3.63, 3.62 and 3.71, respectively with valid category. The results of student and student response analysis obtained an average score of 89.98 and 87.7 which are categorized as very practical. Based on these results, it can be concluded that the electronic module with the Kvisoft flipbook maker is suitable for use as learning material and can be tested in direct learning.

1. Introduction

The development of information technology has had an impact on the world of education, especially in the learning process that is more interesting and fun. The good influence of information technology makes schools provide this information technology. This is done to support the learning process at school.

In Indonesia, the use of multimedia as a learning tool is still limited. which is caused by the limited application of teaching materials commonly used by teachers and students in teaching and learning activities. Teaching materials that are often used in the learning process in general are printed media. In the use of printed media such as books, it has several limitations, including the material that can only be contained in the form of text and images, or the teacher uses powerpoint slides to explain the teaching material to be delivered, but the powerpoint slides cannot cover all the material to be taught, so that teachers and students must provide more than one book as a result students often complain, for example, heavy burdens, do not have reading books because they are unable to buy or photocopy, do not fit in a bag and so on so that the learning process does not go well.

Furthermore, from the observations it is known that students are still less motivated in learning activities, especially in learning that takes place in the afternoon and material that is abstract. This can be seen from the behavior of students in learning, including the lack of attention of students to the teacher's explanation, uncomfortable sitting in their place, tends to make noise, goes in and out of class, tends to avoid asking questions and answers, and students get bored quickly in paying attention to the teacher's explanation then telling stories with his classmates and some even sleepy and falling asleep in class as a result the learning process is not going well.

Based on the results of observations in several schools in Indragiri Hulu district, biology teachers still rarely develop learning modules, teachers only use printed books that are already available, so that students are bored in following the teaching and learning process.

One way to eliminate student boredom and to overcome problems faced by students, the author intends to develop an e-module, which is a tool to convey messages or information to students to be more motivated in following the teaching and learning process, because e-modules have Some of the advantages compared to the printed module are practical, lightweight, economical e-module and can be taken anywhere because e-module is not only in computers, laptops, notbooks but also on Android, while printed books are expensive, heavy and easily damaged.

The e-module that the researcher will develop is in the form of a kvisoft flipbook maker which looks attractive because it includes pictures, videos and animations. Likewise, when reading, students can feel like opening a book physically because there is an animation effect because when moving pages it will look like opening a book so that with its practicality and attractive appearance it is hoped that students can be motivated to learn anywhere and anytime (Umiati Syafriah, 2017) so that the development of an e-module assisted by the flipbook maker will be able to increase the average student learning outcomes (Haryanti & Saputro, 2016).

The selection of the kvisoft flipbook maker e-module as an alternative in providing learning media is that the kvisoft flipbook maker e-module is a medium that It is relatively easy to apply or apply because it does not require an understanding of a sophisticated programming language (Anandari et al., 2019), so by utilizing this e-module, researchers design learning media on abstract circulatory system material to become more real, will make it easier for teachers to explain mater i, as well as students will be more motivated and easier to accept learning material which is of course supported by the right learning model.

The e-module used must pay attention to and consider the learning model to be applied and have a connection with the syntax of the learning model to be used, one of the models that can be used to motivate students in learning is the Problem-Based Learning (PBL) model, which is a model which can train students in solving problems. Elmiwati et al. (2020) explain that PBL learning helps students develop skills in problem solving, intellectual skills, and become independent learners. Farenta et al. (2016) further explained the advantages of PBL compared to conventional learning, namely that PBL teaches students to understand concepts, teaches students to be active and think critically, teaches students to learn independent.

Based on the description above, the aim of this study is to develop e-module teaching materials using the Kvisoft flipbook maker through the PBL model in order to motivate students in learning. This research is useful as an effort to add references to biology teaching materials, especially KD.3.6 structure and function of blood circulation and to provide an overview for biology teachers to design appropriate learning media, especially on abstract material so that learning activities become fun.

2. Methodology

This study used the Research and Development method using ADDIE Model. The model has five development stages, namely Analyze, Design, Developmen, Implementation, and Evaluate. The R&D method is a research method used to produce certain products and test the effectiveness of these products. The research was carried out to obtain information about user needs, while development was carried out to produce learning modules with the Kvisoft Flipbook Maker application. Data collection techniques used interviews and questionnaires. The interviews conducted in this study were unstructured or non-standardized interviews, a set of questionnaires used were validation for media experts, material experts, biology teachers, student responses and student responses.

The data obtained from the questionnaire were analyzed using qualitative descriptive statistics. The results of the scores were validated and the average was sought and then converted to determine the validity and feasibility of e-module teaching materials using the Kvisoft Flipbook Maker application.

The research implementation time was started from July - November 2019. The development stage and practicality testing were carried out in the Master Program of Biology Education, Faculty of Teacher Training and Education, Riau University and for the limited trial phase it was carried out at SMA N 1 Seberida, Indragiri Hulu Regency.

Development Procedure

The procedure for developing teaching materials in the form of an electronic module was using the Kvisoft flipbook maker on the structure and function of blood circulation. This research was limited to the development stage. The research procedure is presented in Figure 1.
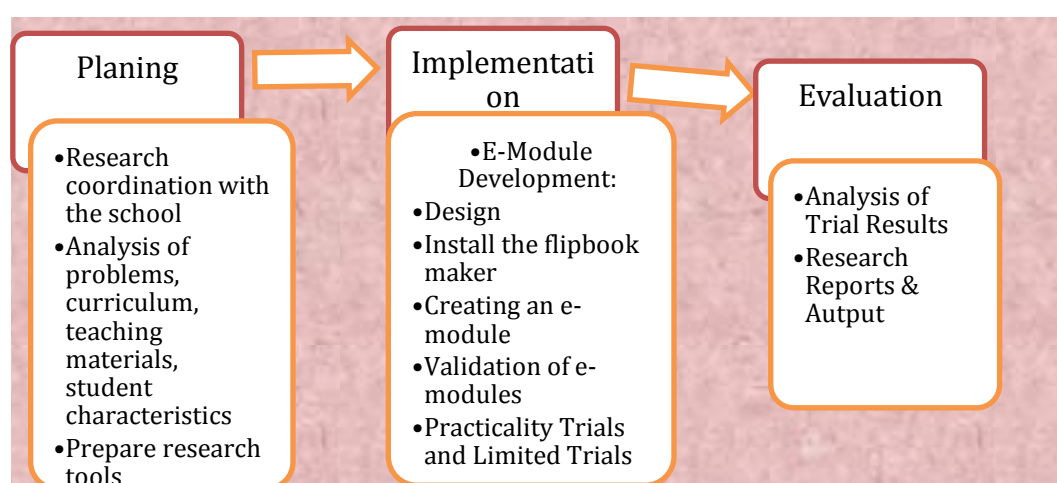

Figure 1. Research Procedure

Data Analysis Techniques

a. E-Module Development Analysis by Validators

Assessment aspects by media and material expert validators in assessing e-modules with a linkert scale, scores 1-4 (Table 1) (Riduwan, 2014). The research results are presented in tabular form and analyzed descriptively.

Table 1. Evaluation Categories by Validators

No	Rating Score	Category
1	4	Very good
2	3	Well
3	2	Enough
4	1	Not good

The analysis of the validation results was carried out by looking for the mean of the results of the validator's assessment and compared with the validity criteria (Table 2). The formula for finding the average results of the validator's assessment is as follows:

: $M = \sum \square (FX / (N))$

Information :
M: Average score
FX: Score earned
N: The number of validity components

Table 2. Validity Criteria

No	The Average Score Interval	Validity Category
1	$3,25 \leq x \leq 4$	Sangat Valid
2	$2,5 \leq x < 3,25$	Valid
3	$1,75 \leq x < 2,5$	Kurang Valid
4	$1 \leq x < 1,75$	Tidak Valid

b. Analysis of Practicality Tests and Limited Trials

Analysis of practicality using a Likert scale with the steps (Riduwan, 2014)
1. Give a score for each answer item strongly agree (4), agree (3), disagree (2), and disagree (1).
2. Add up the total score of each practitioner for each indicator
3. The value of practicality is given by using a formula

$$: P = f / N \text{ x } 100\%$$

Information:
P = final grade
f = Acquired score
N = Maximum Score
Meanwhile, the practicality category can be seen in Table 3

Table 3. Practicality Criteria

No	Value (%)	Criteria
1	$80 < x \leq 100$	Very Practical
2	$60 < x \leq 80$	Practical
3	$40 < x \leq 60$	Quite Practical
4	$20 < x \leq 40$	Less Practical
5	$0 < x \leq 20$	Impractical

3. Results and Discussion

Analysis

1) Problem Analysis

The results of interviews with 6 biology teachers of class XI.MIPA explained that each 100% had used the 2013 curriculum, still lacked innovative learning tools, namely never using e-modules as a learning resource, never developing learning media for the reason that inadequate, so 100% they agree that if the researcher develops e-module in the hope that the development results will be used in the

learning process, then 80% think that one of the materials in odd semesters that is difficult for most students to understand is the structure and function of the circulatory system and the immunity system material in the even semester which is marked by the low student learning outcomes.

Low student motivation, among others, is motivated by learning tools that are not yet innovative which results in students being less enthusiastic in PBM. Teachers as professional educators are expected to be able to compile learning tools and develop them according to the situation and conditions (Ningsih et al, 2020). Furthermore, 100% stated that too much learning load resulted in students being bored in the learning process, as well as face-to-face time, 100% stated that it was still lacking so that the material was not conveyed optimally.

2) Curriculum Analysis

The results of an interview from a biology teacher at SMA N 1 Seberida during the pre-research stage showed that SMA N 1 Seberida implemented the 2013 Curriculum, so that the e-module developed to improve students' motivation and learning outcomes on the structure and function of the circulatory system refers to the 2013 curriculum.

3) Analysis of Teaching Materials

Material analysis is the identification of the materials to be taught and arranges them systematically. Based on the results of observations on the daily test scores at SMA N 1 Seberida, it is known that there are biology learning materials that students find difficult. can be seen in Figure 2.
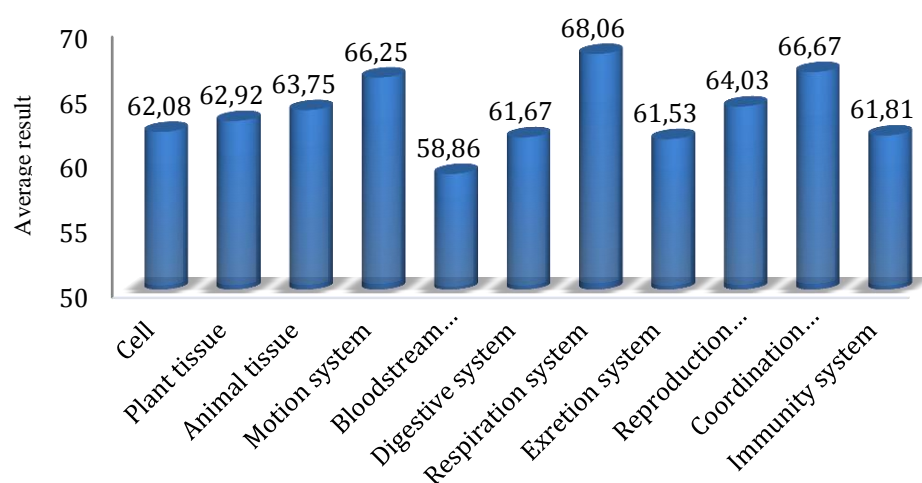

Figure 2. Average Biology Daily Test Value of Students

Figure 2 shows that the lowest average daily test score for students is the concept of the structure and function of the circulatory system, which is 58.86, followed by the excretory system 61.53, the digestive system 61.67, the immune system

61.81 and so on. . Some concepts in biology learning are difficult for students to understand, one of which is abstract concepts, such as the concept of structure and function of the circulatory system.

4) Analysis of Student Characteristics

The characteristics referred to in the analysis of students are the motivational background, learning outcomes and conditions of students' biology learning. The description of each characteristic is as follows.

a. Motivational background and learning outcomes of students
Based on the results of an interview with a biology teacher at SMAN 1 Seberida, it was found that so far the value of biology was still low, the learning outcomes of many students were still below the KKM (Minimum Completeness Criteria), especially on abstract material, such as the structure and function of the circulatory system. Students tend to be less enthusiastic in learning, less motivated in solving problems, so that learning outcomes are low. Learning motivation has a very significant effect on student learning outcomes, the higher the student's learning motivation, the higher the student achievement (Robbi et al, 2020)

b. Learning Conditions
The results of observations and interviews with biology teachers in class XI.MIPA SMA N 1 Seberida found the fundamental problems that occurred in the learning process, namely: (1) The teaching materials used were still classified as conventional teaching materials, namely textbooks and LKPD, books used by teachers and students are more than one because the powerpoint slides have not been able to cover all the teaching material to be delivered so that students often complain, for example, they are heavy, do not have reading books because they cannot buy or photocopy, do not fit in a bag and so on so that the learning process does not run smoothly. well; (2) The learning approach is still centered on the teacher (teacher center) resulting in a lack of attention from students to the teacher's explanation, students do not feel comfortable sitting in their place, tend to make a fuss, go in and out of class, tend to avoid being asked to answer questions, and students get bored quickly in paying attention to the teacher's explanation and then telling stories with his classmates, some were even sleepy and fell asleep in class (Hamzah B.Uno, 2008).

Design Stage

In this phase, the researcher arranged the e-module teaching materials and instruments needed in the research. The following describes the activities carried out by researchers in the design phase.

a. Designing Learning Materials

The development of e-modules using the Kvisoft flipbook maker in this study was conducted in biology class XI.MIPA, on the structure and function of the circulatory system in humans. The background of the selection of this material

was based on the results of interviews with biology teachers at SMA N 1 Seberida who explained that the structure and function of the circulatory system was one of the subjects considered difficult to learn by students, this was due to two main factors, namely: (1) the concept The structure and function of blood circulation are abstract, (2) the learning schedule is at the end of the semester approaching the odd Semester Final Examination (UAS), in which teachers usually focus more on UAS preparation, therefore researchers need to develop e-modules on KD. 3.6. the structure and function of the circulatory system.

b. E-Module Requirement Design

The e-module requirements design is a flowchart for electronic module writing to determine the number of learning activities that must be written. The e-module arranged in this study consists of four learning activities, which can be seen in Figure 3.
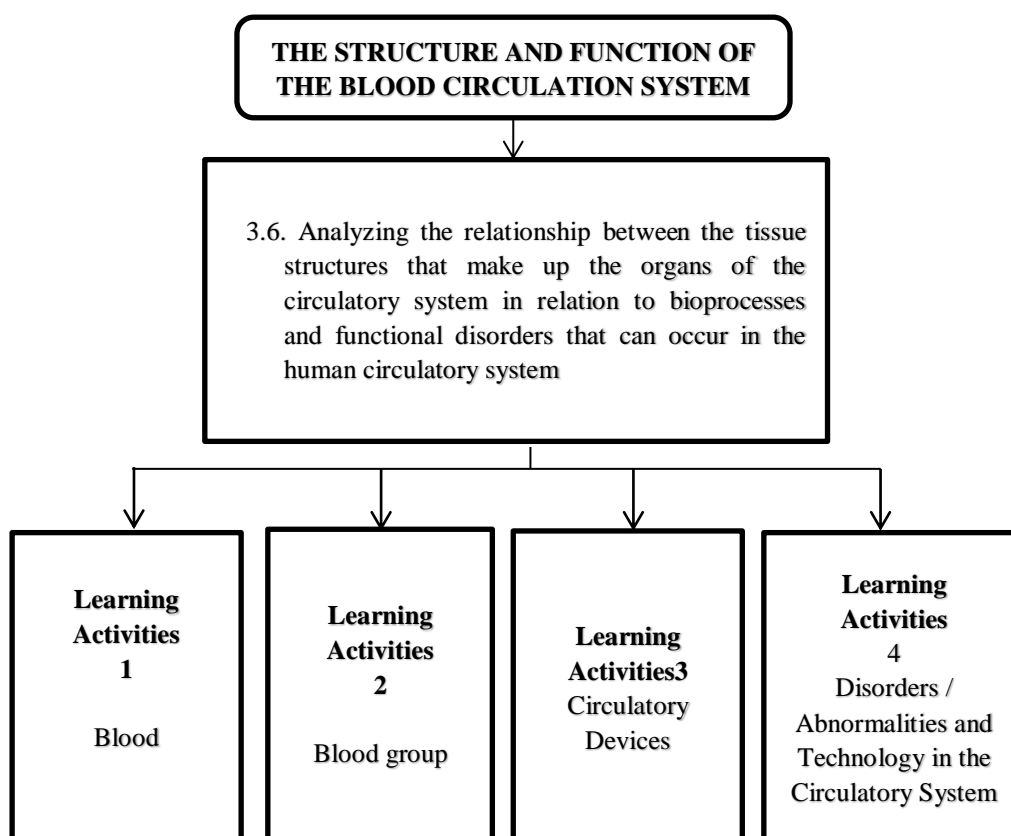

Figure 3. Design of E-Module Requirements

c. Display Design (Story Board)

The display design (story board) is used to facilitate researchers in making e-module development products. The following is the sequence of e-module development designs that have been carried out (Yustina, 2010)

- Cover (contains the logo of the university where the development research was carried out, the title of the e-module, the name of the subject, the class and the semester, an image depicting the title of the e-module, year of manufacture, and the identity of the author)
- e-module identification (introduction and table of contents)
- Introduction to e-modules (e-module description and core competencies)
- Contents of e-modules (lesson materials, exercises and summaries)
- Closing of e-modules (Glossary and Answer Key)

Development Stage

1) E-module Product Manufacturing

Product creation is the process of translating a development product design into an actual display (Figure 4). At this stage it is necessary to determine what application program will be used to produce teaching materials that are in accordance with the expectations and needs of students. The main application used in this development research is the kvisoft flipbook maker with several other supporting application programs, namely, Ms. Publiser, VCDC Video Editor, Any Video Conventer (Haryanti & Bagus, 2016)
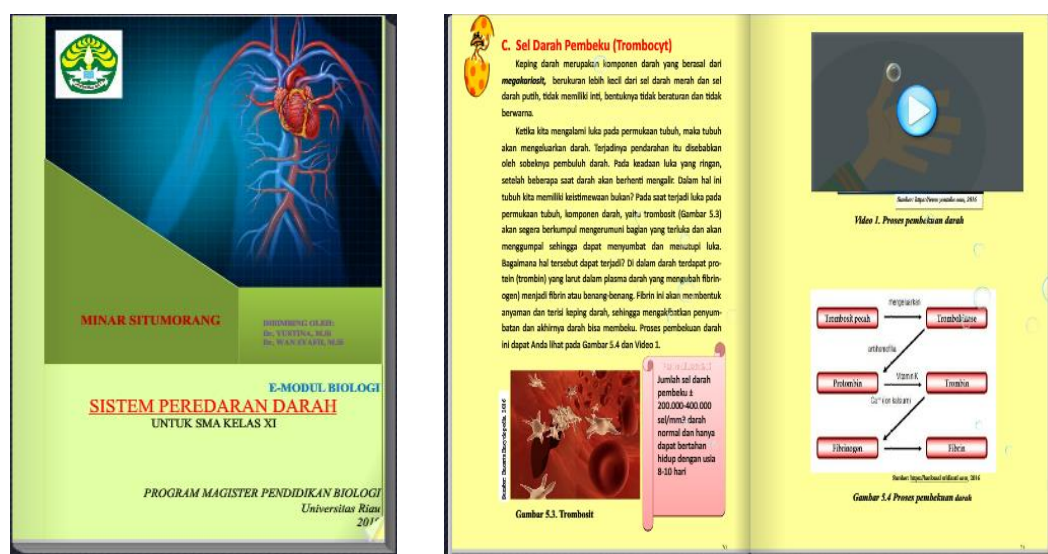

Figure 4. The E-Module Product of Circulatory Structure and Function

2) The Validity of the E-Module

The validity of the e-module can be measured using a validity instrument. The validity instruments used in this study were:

a. Media Expert Validation Results
The assessment components contained in this sheet include the size of the e module, the cover design and the contents of the e-module (Mulyadi et al, 2016). The validity test by media experts aims to determine the feasibility assessment of

the initial product developed whether it meets each component of the feasibility of the media. The e-module assessment by media experts is presented on an assessment sheet using a Likert scale where the lowest range is 1 and the highest is 4.The results of validation by media experts are presented in table 4.

Table 4. Validation Results of Media Experts

	Assessment Aspects			Total
	Size	**Cover Design**	**E-Module Content Design**	
Total	7	13	40	60
Average	3.5	3.25	3.63	3.53
Presentase	87.5	81.25	90.91	86.56
Criteria	Very Valid	Very Valid	Very Valid	Very Valid

Based on the results of the media expert's validation in table 4. the component of the e-module size assessment obtained a mean of 3.5 with a percentage of 87.5%, the cover design averaged 3.25 with a percentage of 81.25% and the module content design averaged 3.63 with a percentage of 90.91%. The data obtained shows that the average score and the average percentage of all aspects is 3.53 and with an average of 88.23%, meaning that the prototype I can be categorized as very good and very valid.

b. Material Expert Validation Results.
The validity test by material experts aims to determine the feasibility assessment of the initial product developed whether it meets each component of the material assessment. Assessment of learning by material experts is packaged on an assessment sheet using a Likert scale where the lowest range is 1 and the highest is 4. The components assessed include 4 aspects of assessment, namely the feasibility of content consisting of 8 statement items, pedagogical consisting of 10 statement items, language and graphics each of which consists of 4 statement items. The evaluation and suggestions from material experts are then used as a basis for improving and improving the quality of prototype I so that a new viable prototype will be produced. The results of the material validation are presented in table 5 below.

Table 5. Results of Material Expert Validation

Validator	Assessment Aspects				Total
	Content Eligibility	**Pedagogic**	**Language**	**Graphics**	
I	30	38	13	14	95
II	32	39	15	15	101
Amount	62	77	28	29	196
Average	3.88	3.85	3.5	3.63	3.77
Percentage	96.88	96.25	87.5	90.63	92.81
Criteria	Very Valid	Very Valid	Very Valid	Very Valid	Very Valid

Based on the results of the validation of material experts in table 5 for content feasibility, it was obtained a mean of 3.88 with a percentage of 96.88%, pedagogical aspects obtained a mean of 3.85 with a percentage of 96.25%,

language obtained a mean of 3.5 with a percentage of 87.50%, while The mean graphic is 3.63 with a percentage of 90.63% and the category of all aspects is very valid, so it can be concluded that the e-module of circulatory structure and function developed is suitable for use as teaching material.

c. Biology Teacher Validation Results
Prototype I which has been valid based on the results of validation by experts / validators, then conducted an assessment of respondents by 20 biology teachers who teach in class XI.MIPA in INHU district. The validation results can be seen in table 6 below.

Table 6. Results of The E-Module Validation by The Biology Teacher

No	Assessment Aspects	Average Score	Category
1	Content eligibility	3,62	Very valid
2	Construct	3,78	Very valid
3	Application	3,64	Very valid
Average		3,71	Very valid

Table 6. shows that the mean value of the content feasibility aspect of the e-module development results obtained a mean score of 4.62 and with the valid category, where the validity value in the range of $3.25 \leq x \leq 4$ is included in the valid category. (Sugiyono, 2015)

The second aspect in teacher assessment is the construct aspect. The construct aspect obtained a mean score of 4.78 with a very valid category. Overall e-module is very interesting to use so that it can trigger the motivation of students later.

The next aspect is the application aspect. The implementation aspect obtained a mean score of 4.64 with the valid category. So when viewed from all aspects of the assessment, it gets a mean of 4.71 with a very valid category. The developed e-module makes learning more meaningful and easy to understand. Overall, respondents think that the e-module developed can be very helpful in learning activities.

3) Test the e-module validity hypothesis

The validity data obtained through the teacher's response questionnaire to the e-module developed were then analyzed using hypothesis testing. The researcher's e-module validity hypothesis test used the Pearson Product Moment Validity Test using SPSS 20.0 for windows software.

The validity of the e-module is assessed from 3 aspects, namely the content feasibility aspect, the design / construct aspect and the implementation aspect. These three aspects obtain sig. <0.05 and the value of r count> from r table, this means that all questionnaires can be used as accurate data collectors in the next test, namely the reliability test.

4) E-Module Reliability Test

After conducting the validity test, the reliability test was carried out in order to determine the level of confidence of the questionnaire used in the study or to determine the level of consistency of the questionnaire used even though it was used repeatedly.

Reliability test in this study used Alpha Cronbach's assistance with the SPSS 20.0 program. As for the basis for decision making in the reliability test, if the Crombach Alpha value is> 0.60 then the questionnaire is declared reliable or consistent, whereas if the Crombach Alpha <0.60 then the questionnaire is declared inconsistent. (Arisanti & Mhd. Subhan, 2018). The results of the e-module reliability test carried out in this study are shown in Table 7.

Table 7. Reliability Test Results

Cronbach's alpha	N of Items
,843	25

Table 7 explains that the questionnaire used in this study is reliable or consistent, where the Crombach Alpha value is> 0.60, that is, 0.843> 0.60. For this reason, it can be concluded that the questionnaire used for the e-module assessment developed is consistent or reliable (Arisanti & Mhd. Subhan, 2018).

5). Practicality Test Results

The results of the practicality test by 5 students (Table 8) are as follows:

Table 8. Practicality Test Results

No	Assessment Aspects	Average Score	Category
1	Display and language	90,40	Very Practical
2	Attractiveness	89,69	Very Practical
3	Use	89.86	Very Practical

Table 8 shows that the mean value of the display and language aspects of the development results e-module obtained a mean score of 90.40, the attractiveness aspect obtained a mean score of 89.69, the use aspect obtained a mean score of 89.86 and the mean of the three aspects was 89.98 . The criteria in practicality used which are in the range $80<x\leq100$ are included in the very practical category (Fransisca, 2017). So when viewed from all aspects of the assessment, criteria are very practical.

6). Limited Trial Results

The results of the limited trial by 30 students (Figure 5) are as follows:
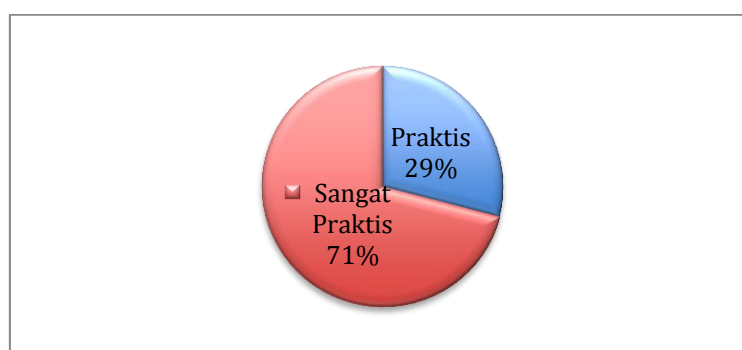
Figure 5. Percentage of Student Responses to e-Module Development Results.

Figure 5 shows that 71% of students think that the E-Module is very practical and 29% of students think it is practical to be used in the learning process. According to students the e-module being developed is very interesting. This is because the e-modules developed have never been previously known and used in the learning process

4.   Conclusion

The e-Module developed by the kvisoft flipbook maker is valid and suitable for use, as well as the experimental results at SMA N 1 Seberida show that using the kvisoft flipbook maker e-module can increase student learning motivation and is very effective in increasing student learning outcomes, for that. The researcher hopes that the e-module developed using the Kvisoft Flipbook Maker can be used as an alternative source of learning biology subjects.

Acknowledgement

References

Anandari, Q. S., Eka, F.K., Marlina., Suci, O.P., Lia, G.M ., Rizka, M., & Muhammad, R. F. (2019). Pengembangan Modul Elektronik: Motivasi Belajar Siswa Dengan Menggunakan Aplikasi Kvisoft Flipbook Berbasis Etnhokonstruktivisme. *Jurnal Pedagogik, 06 (02),* 417-436

Andriyani, H., Hairunnisyah, S., & Gunawan. (2016). Pengaruh Model PBL Berbantuan Media Virtual Tehadap   Kemampuan Pemecahan Masalah Fisika, " *Jurnal Pendidikan Fisika dan Teknologi. 2(3).* 59-77

Arisanti, D., & Mhd. Subhan. (2018). Pengaruh Penggunaan Media Internet Terhadap Minat Belajar Siswa Muslim di SMP Kota Pekanbaru, J*urnal Al-Thariqah 3(2).*

Elmiwati., Kartini., & Zulkarnain. (2020). Improvement of Mathematical Problem Solving   Ability of High School Students through Problem Based Learning. J*ournal   of Educational Sciences,* 4 (3), 584-593

Fauzi,M., & I Made, M. 2020. Pengembangan Modul Elektronika Dasar Untuk Meningkatkan Hasil Belajar Siswa Pada Mata Pelajaran Teknologi Dasar Otomotif di SMK Negeri 2 Lamongan. *JPTM. 09 (02), 10-19*

Farenta, A.S., Sulton, & Punaji,S. (2016). Pengembangan E-Module Berbasis Problem Based Learning Mata Pelajaran Kimia Untuk Siswa Kelas X SMA Negeri 8 Malang. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*. Malang.1(6), 1159-1168

Fransisca, M. (2017). Pengujian Validitas, Praktikalitas, dan Efektivitas Media E-Learning Di Sekolah Menengah Kejuruan. *Jurnal Ilmiah Pendidikan Teknik Elektro, 2(1*), 17-22

Hamzah B.Uno. (2008) .*Model Pembelajaran Menciptakan Proses Belajar Mengajar yang Kreatif dan Efektif*. Jakarta:Bumi Aksara,

Haryanti,F., &Bagus, A.S. (2016). Pengembangan Modul Matematika Berbasis Discovery Learning Berbantuan Flipbook Maker Untuk Meningkatkan Kemampuan Pemahaman Konsep Pada Materi Segitiga: *Jurnal Pendidikan Matematika*, 2(1), 28-34

Mulyadi, D.U., Sri, W., & Rif'ati, D. H . (2016). Pengembangan Media Flash Flipbook Untuk Meningkatkan Keterampilan Berfikir Kreatif Siswa Dalam Pembelajaran IPA di SMP. *Jurnal Pembelajaran Fisika,* 4 (4), 296 -301

Nanang., Mohammad, S., & Nizar, A.H. (2017). Pengaruh Pembelajaran Tutorial Berbasis Multimedia Interaktif Terhadap Peningkatan Motivasi Dan Hasil Belajar Siswa Pada Pokok Bahasan Statistika. *JTEP-Jurnal Teknologi Pendidikan dan Pembelajaran. 2(1).*

Nikita, P.M., Albertus, D.L., & Alex, H. (2018). Pengembangan E-Modul Materi Fluida Dinamis Untuk Meningkatkan Kemampuan Berpikir Kritis Siswa SMA Kelas XI. *Jurnal Pembelajaran Fisika,7(2),* 175-180

Ningsih,F., Atma,M., & Yenita, R. (2020). Development of Learning Tools with the   Application of Learning Inventions to Improve Mathematical Problem   Solving   Ability Social Arithmetic Material. *Journal of Educational   Sciences*, 4(1), 44-52

Riduwan. (2014). *Metode dan Teknik Menyusun Proposal Penelitian: Untuk Mahasiswa S-1, S-2 dan S-3*. Bandung: Alfabeta.

Robbi, A.A., Gusnardi., & Sumarno. (2020). Analysis of the Effect of LearningMotivation on Learning Achievement, *Journal of Educational Sciences,* 4(1), 106 –115

Sugiyono. 2015. *Metode Penelitian dan Pengembangan*. Alfabeta: Bandung.

Syarifuddin., Ibnu, K., & Musri. (2016). Penerapan Model Pembelajaran Problem Based Learning (PBL) Dengan Media Audio Visual Pada Materi Ikatan Kimia Terhadap Penguasaan Konsep Dan Berpikir Kritis Peserta Didik SMA Negeri 1 Panga. *Jurnal Pendidikan Sains Indonesia*, 4(2), 96-105.

Umiati, S. (2017). Pengembangan E-Modul Pada Mata Pelajaran Biologi Materi Pokok Animalia Invertebrata Untuk Siswa Kelas X Di SMA Negeri 1 Dawarblandong Kabupaten Mojokerto. Teknologi Pendidikan, Fakultas Ilmu Pendidikan, Universitas Negeri Surabaya. 1(1), 0-216

Yustina. (2010). Pembinaan dan Keberkesanan Modul Pembelajaran Alam Sekitar Melalui Pendekatan Konstruktivisme.*[disertasi].* Bangi:Universitas Kebangsaan Malaysia. 2010

Yustina., & Elya, F. 2019. Increase Motivation And Knowledge Environment Through Contextual Model. *Journal Asian SocialScience.9(12*), 237-243

Zulvianda,H., Latifah, H., & Muhamad, N. (2017). Pengembangan E-Module Kimia SMA Pada Materi Larutan Elektrolit dan Non Elektrolit. J*urnal Ilmiah Mahasiswa Pendidikan Kimia (JIMPK),1(3),* 9-16.