Jurnal Inovasi Pendidikan Fisika (JIPF) *Vol. 06 No. 03, September 2017, 285-291*
ISSN: 2302-4496

DEVELOPMENT OF E-BOOK USING KVISOFT FLIPBOOK MAKER TO TRAIN SCIENCE PROCESS SKILL FOR SENIOR HIGH SCHOOL STUDENTS IN CURRICULUM 2013

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Abstract

The aim of this study is to test feasibility's e-book (validity, practicality, and effectiveness). E-book gets its feasibility if its value about ≥ 61% in good and excellent category. Research method is ADDIE (analyze, design, develop, implement, and evaluate). Collect the data by observing (practicality and effectiveness) and questioning (validity sheet and student response). The subjects are 28 students of 10 grades of Science (Muhamaddiyah 9 Senior High School Surabaya). Result of validity is fall into excellent category (91% of learning, 92% of material, and 87% of media). Result of practicality is is fall into good and excellent category (implementation 100%, constrain is no bother for this study). Result of effectiveness in attitude assessment is fall into good and excellent category (54% of curiosity,100 % of cooperate , 100% of honestly, 100% of responsible, and 50% of accuracy. Result of effectiveness in skill assessments is fall into good and excellent category (71% of observe, 82% of classify, 57% ask question, 100% of formulate the hypothesis, 100% of conduct the investigation, 89% of interpret, and 62% of communicate. Student's response is excellent category. The result of this study is the development of eBook is success into its feasibility.

Keywords: e-Book, Science Process Skill.

INTRODUCTION

Indonesia was placed to 69th from 72 countries which participated at the survey of PISA in 2015 (OECD, 2016). In previous year, 2012, Indonesia was placed to 64th from 65 states (OECD, 2014). The purpose of Indonesia to participate in the survey was able to compare Indonesia's students' ability with other countries, so it could help for the policy to enhance the quality of education (Biro Komunikasi dan Layanan Masyarakat Kementerian Pendidikan dan Kebudayaan, 2016). The curriculum 2013 was the right policy for stressed essence scientific approach in learning (Mudlofir & Rusydiyah, 2016). Scientific approach could help the development of attitudes, skills, and knowledge of students (Daryanto, 2014), especially skills needed in learning process science (Ibrahim, 2012). Benchmark of survey PISA about science for use knowledge and identify problems to understand the facts and decisions about nature and a change that occurs in environment (Biro Komunikasi dan Layanan Masyarakat Kementerian Pendidikan dan Kebudayaan, 2016). It was suitable with to the nature of science which consist of the product (a collection of knowledge), the attitude (identification problems to find a way/street think), and process (investigate) (Sutrisno, 2006). The nature of science accordanced with applied of learning's curriculum 2013 which emphasis for scientific approach (Permendikbud, 2016). The learning tools required by students at the time could to train science process skill, especially with the development of the technologies (Mudlofir & Rusydiyah, 2016) which caused the previous studies which developed of learning tools by technologies or gadgets that form e-book (Kustijono & Ghofur, 2015; Rohmah, 2016), but the development of e-book things had been done by just for the students' cognitive perspective. It allows to develop e-book that can train science process skill in learning by curriculum 2013. This research applied to Muhammadiyah 9 Senior High School Surabaya that is one of schools based of entrepreneurship to purpose generation that can be insightful science and technology.

The use of e-book has strong potential to students for change their looked up for reading and its consuming interactively and make them comfortable, where in the print books have pictures, narratives, and charts but e-book can contain various features like audio, music, animation, and video (Schugar, Smith, & Schugar, 2013). It could be develop of e-book for students to train their science process skill. Science process skill was necessary students' skill for learning science, one is Physics, where the curriculum 2013 can apply the implementation of scientific approach (Depdiknas, 2014). Science process skill was needed to scientific investigate which reached by students for study of science, it viewed through by cognitive and skill process, in other word that science process skill includes cognitive, psychomotor, and affective assessment to study of science for gather information/knowledge (Sheeba, 2013). Learn of Physics known the three of its nature, they are nature of physics as a product, process, and attitude. In the nature of Physics as

product, learning focus on a collection of knowledge which includes the fact, concept, principles and law, theory, formula, and method (Sutrisno, 2006). The nature of physics as process more stressed of science process skill, it included of basic and integrated skill, two of these determined to seven skills, it included about approaching scientific which are applied in learning using Curriculum 2013 (Sutrisno, 2006; Dimyati & Mudjiono, 2015; Depdiknas, 2014). Seven skills assessed in this research were observed, classify, ask, formulate hypothesis, investigate, interpret, and communicate (modification of Sutrisno, 2006). The nature of Physics as attitude of stressed about scientific attitude, in this research it included curiosity, cooperate, honesty, responsibility, and accuracy.

e-Book was a digital of printed book (Wikipedia, the free encyclopedia, 2017), printed book included the descriptive of material about subjects or field of study certain, it arranged systematically and selected based on a particular purpose, orientation learning , and development of students for assimilationed book, it used for help student to study for learning activities in school (Muslich, 2016). The development of e-book which had exist was develop e-book which used by computers/laptop for its operate, more focus on the ability of cognitive students after using e-book and not added virtual laboratorium related to the matter inside, so students could't do experiment directly (Restiyowati & Sanjaya, 2012; Wilujeng & Mulyaningsih, 2013; Wahyuni, 2014; Darlen, Sjarkawi, & Lukman, 2015; Kustijono & Ghofur, 2015; Rohmah, 2016). Based on development e-book existing there are several the advantage, it was to reduce the use of paper (Webber, 2016), and could be more communicative dependants use by students from videoes or gif images, but the weakness of e-book which had exist was the purpose of it just only to know the ability of cognitive students or knowing knowledge of students to the related matter, while the applied of Curriculum 2013 carried out in scientific approach that lead to science process skill. So that videoes and gif images that added into e-book not only used to attract students in learning , but also can be used to train science process skill, thus to applied of curriculum 2013 could work for development of e-book.

The development of e-book would focus to train science process skill's students that emphasizes to applied Curriculum 2013 for learning, so students given the opportunity to investigate based on matter related. One of the applications that can be used to make e-book is Kvisoft FlipBook Maker. It had been used to develop e-book which had existed now (Kustijono & Ghofur, 2015; Rohmah, 2016). Kvisoft FlipBook Maker was the type of software professional that convert file pdf to form such as books, on the device the page that can be added function editing, allows to infuse video; figure; audio; hyperlink; hot spots; and object multimedia (Mudlofir & Rusydiyah, 2016). Science process skill could train through e-book with that application, with the additional for videoes, and flash made e-book could develop to be communicative for user. Videoes could train observed, classify, ask, and formulate hypothesis, while flash can used to help user train ask, formulate hypothesis, and communicate skill.

Based on statements elaborated former, hence this research discusses "Development of E-Book Using Kvisoft Flipbook Maker to Train Science Process Skill for Senior High School Students in Curriculum 2013"

METHOD

The method for this research was ADDIE. Research design of ADDIE could show in Figure 1.The analyze step done by identifying problems on the previous studies that focuses develop e-book on the ability of cognitive students for the result in Muhammadiyah 9 Senior High School Surabaya (school aimed at in insightful science and technology). The development of e-book applied in that school, was the right thing because the purpose of there was to lead of e-learning. The applied of Curriculum 2013 that lead to scientific approach was apply in that school, so the required of development's e-book that could be train science process skill of students.

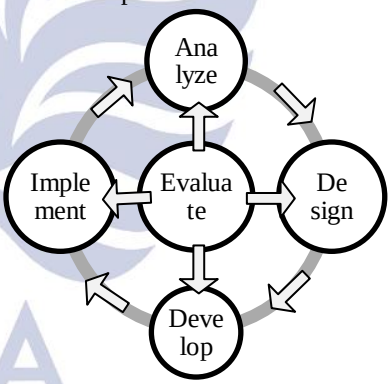

Figure1. Research Design
Source: Branch, 2009

Design step was the next step of identification problems. In this step did to design e-book that can be train science process skill's students. E-book designed based on students need. Develop step was a process to made e-book. It was done by software which had previously used to development e-book, it was Kvisoft FlipBook Maker. The development of e-book focused to train science process skill. For develop's e-book needed to election figures and videos that more focused into stuff that was generally known by students especially in matter related. And then, it could to add experiment videoes from simulation PhET that useful for one of those which to train investigate skill of students, especially for determine of variables in experiments. Next for the interactivity

user/students that could operate e-book, it included questions that provide multiple choices, so students could pick one or more answers. It could make by Macromedia Flash.

In this step of done evaluation step, it was validity of e-book. Validity was one of assessments of product before it can be use by students. Validity concerned of material that would use, and based on Curriculum that used. It based on knowledge and relation of knowledge and validation's product (Nieveen, 1999). Validity reviewed of learning, material, and media. The development of e-book could be use by students, if the validity got feasibility's criteria of conceptually about ≥ 61% in good and excellent category (Riduwan, 2015). Assesment of validity used examine and validation sheet, it was an open questioning, where it included assessment for each indicators that use Likert scale (4=excellent, 3=good, 2=poor, 1=very poor (Fraenkel & Wallen, 2009)) and suggestions from validator. There were two validators who assesst validity's e-book. It caused the assest of validity became an average, so the scale of feasibility that could use like in Table 1.

Table1. Scale for Assessment of Feasibility's e-Book

Scale	Category
3.50 – 4.00	Excellent
3.00 – 3.49	Good
2.00 – 2.99	Poor
1.00 – 1.99	Very Poor

Implement step was done after assesst the validity in good and excellent category for its result in each indicator. Implementation for this research was done in Muhammadiyah 9 Senior High School Surabaya, when the school year of 2016-2017, with 28 students in X grade of Science as object research. Learning used e-book performed in one meeting for 120 minutes. In this step was done evaluation step that was assesst practicality (implementation and its case) and effectiveness (attitude and science process skill, and student response). Practicality and effectiveness assesst used by observation that was done by three observers. Instrument of practicality was Implementation and Case Sheet. Instruments of effectiveness were Attitude and Science Process Skill Assessment Sheet, and its rubric assessment, and student response questioning. Scale of assessment for them suitable with Table 1.

Practicality attended of the consisten of what was try to achieve and it should achieved in curriculum, and curriculum operational; effectiveness attended of what was try to achieve and experience in factual condition, and what was curriculum want to achieve (Nieveen, 1999). E-book would feasible of implementaly (practicality) and factually (effectiveness) if had results about ≥ 61% in good and excellent category (Riduwan, 2015). When the assest of e-book was fulfilled, the result was e-book feasible of conceptually, implementaly, and factually.

RESULTS AND DISCUSSIONS

Validity

Result of validity's e-bookthat reviewed of learning, materi and media show in Table 2.

Table2. Result of Validity

Indicator	Score	Category
Learning		
Suitability by Implementation of 2013 Curriculum	3.5	Excellent
Suitability by Science Process Skill	3.8	Excellent
Validity of learning	**91%**	**Excellent**
Material		
Suitability by silabus	3.5	Excellent
Suitability by nature of Physics as product	3.8	Excellent
Suitability by Curriculum 2013 in Content Standart	3.5	Excellent
Suitability by nature of Physics as process that applied Science Process Skill	3.5	Excellent
Perumusan Materi	4.0	Excellent
Validity of material	**92%**	**Excellent**
Media		
Suitability by Principle of Learning Media	3.7	Excellent
Suitability by Principle of Curriculum	3.6	Excellent
Suitability by applied Science Process Skill	3.6	Excellent
Suitability of media's display with e-book's cover element	3.3	Good
Suitability of media's display with front element (preface, dedication, dan introduction)	3.3	Good
Validity of media	**87%**	**Excellent**

Design of e-book essentially to train science process skill with the activities that may train these skill, it could make develop of e-book into better for users. There were images and videoes when learn to use by e-book make a potential to changed students' mind in reading and how it consume (Schugar, Smith, & Schugar, 2013). E-book with images, videos and animations could make students to learn interactively, so the purpose to train science process skill could be achieved. Observed skill was the

beginning of learn, after observe something would be the next process of learning. The learning process involves of meaning construction that was continue progress, every time dealing with phenomenon or a new experience held reconstruction, whether strong or weak (Suyono & Hariyanto, 2015). The development of e-book included learning process that provided activities of observed, classify, ask, formulate hypotheses, investigate, interpret, and communicate. E-book made based on user center design or e-book designed with users as its enhance would efficience and interest for user to learning (Shih, Chen, Cheng, Chen, & Chen, 2012).

The assessment of validity's e-book in media especially display of e-book, through advice from validators refer on improving cover and the contents of e-book. Element of cover contained of images that suitable from content of e-book and detailed information about creation e-book, for whom e-book made or maker of e-book (Sohn, Ko, Lee, Kim, Lim, & Choy, 2001). Then the front page that contained of a preface, thanks to, and introduction refer on the previous studies to discuss about standards of e-book, who said about element of the front page contained of preface, dedication, and introduction (Sohn, Ko, Lee, Kim, Lim, & Choy, 2001). The statement show that the improvements of e-book was accordance with standards of e-book.

Practicality

Result of implementation of learning with e-book from observers show in Table 3.

Table3. Result of Implementation

Indicator	Score	Category
Introduction		
E-book helped teacher to give early knowledges for students	3.5	Excellent
E-book helped teacher to guide students for observed motivation's video	3.7	Excellent
E-book helped teacher to give chance for students to know the learning that would studied	3.3	Good
Core		
E-book helped students to obseving activities	3.7	Excellent
E-book helped students to asking activities	3.6	Excellent
E-book helped students to collecting information	3.4	Good
E-book helped students to reasioning activities	3.2	Good
E-book helped students to communicating activities	3,0	Good
Closing		
E-book helped students to reflect today's learning	3.3	Good
E-book helped students to conclude today's learning	3.3	Good
Percentage of Excellent	**40%**	
Percentage of Good	**60%**	

Now many that have already develop a kind of e-book, and whoever the user need technologies for its operate, so users need comfort when using technology in learning (Shih, Chen, Cheng, Chen, & Chen, 2012). Social interaction and scaffolding of instruction given by teachers became two important things for learning by e-book (Huang, et al., 2015). That statement shown that the implementation for use e-book couldn't be separated from interaction between teachers and students with e-book as an helper. Interaction that had good and excellent interaction made e-book to be practice to use because having achieved value about 100 %. Good category, 60 %, where showed that learning activities done with the involvement of some students from all students target research, while excellent category (40 %) indicates that implementation of learning done with the involvement of all students of objects research. This indicates that the implementation of using e-book have qualified feasibility of implement (practicality). The feasibility couldn't separated from the case during learning use by e-book, where the format e-book that didn't compatible for either of one of students' laptop to operate it and the limited time in the delivery of material. But that case didn't disturb overall of implementation, so the percentage of case faced very small or even ignored. From the statements, it could be mentioned that e-book was feasible implementally.

Effectiveness

The results of effectiveness in terms of attitudes assessment that show in Table 4, science process skills assessment (Table 5), and students response (Table 6).

Table4. Percentage of Attitude Assessment

Indicator	Category (%)		
	Poor & Very Poor	Good	Excellent
Curiosity	46	29	25
Cooperate	0	46	54
Honesty	0	14	86
Responsibility	0	21	79
Accuracy	50	46	4

Tabel 5. Percentage of Science Process Skill Assessment

Indicator	Category (%)		
	Poor & Very Poor	Good	Excellent
Observed	29	39	32
Classify	18	61	21
Ask	43	39	18
Formulate Hypothesis	0	71	29
Investigate	0	86	14
Interpret	11	71	18
Communicate	36	64	0

Based on this research there were types of attitude students that can be seen, when students were excellent in curiosity so accuracy would be excellent. Vice versa if students had poor category in curiosity, then for accuracy would also the same category. This shows that the attitude of curiosity could influential for students' accuracy. If the curiosity higher hence the students' accuracy for what was they learned would be the higher too. On science process skill assessment had got that it associated with the attitude assessment, where students who have curiosity that good nor excellent would have skills observed in good and excellent. But there was one of students who have a little weird for assessment, where in curiosity included poor category than in observed included good category, this indicates that videoes or images were presented in e-book have often seen by students so the curiosity was reduced but observed skill and accuracy that also received good category.

The sience process skill assessment that associated with the also seen of students' curiosity in poor category would connect with ask questions that got poor also. For formulate hypothesis, there are students who included in good category although their ask skill had poor category, it was shown that their cooperated to another proven to good and excellent category. Students could cooperate to determine hypothesis that be brought in an experiment or videos which presented in e-book, the cooperated of students could make better atmosphere in class. In learning Curriculum 2013 mandated that it should to build a class to be more interactive.

In communicate skill obtained that the result had good category, although in interpret had excellent category. It was shown that communicate of students do not only can be seen when they spoke in front of class or expressed their opinion, but there are students who couldn't express their opinions orally. Students who can cooperate in excellent, but had communicated skill ingood or poor were indicate that they can communicate what are their thoughts in the small forum, but not in big.

From attitudes and science process skills assessment shown that e-book effective and can be used as one of learning tools for students. Previous study had also said that interactive e-book by the presence of images, videoes, and animations could be more accepted by students (Huang, Liang, Su, & Chen, 2012). Interactive e-book with the addition of visual included it may improve the user interest, it could add to obtain more knowledges (Shih, Chen, Cheng, Chen, & Chen, 2012). Desire to increase their knowledges can make students or users could train their science process skill to better, this was also the case in their attitudes.

Effectiveness also based on student response to e-book, which shown in Table 6.

Tabel 6. Persentase Respon Siswa

Indicator	%	Category
Display of e-book is interesting	100	Excellent
Images or videos in e-book easy to understanding	100	Excellent
Size and type of writing in e-book make comfortable used	96	Excellent
The use of explanation sentences that intelligible	100	Excellent
Providing the button navigation to toward page desired	96	Excellent
E-book helped to train observed skill	96	Excellent
E-book helped to train classify skill	100	Excellent
E-book helped to train ask skill	93	Excellent
E-book helped to train formulate hypothesis skill	93	Excellent
E-book helped to train interpret skill	82	Excellent
E-book helped to train communicate skill	100	Excellent
Can use e-book for another subjects	98	Excellent

Student response for e-book which developed reached percentage in excellent category for each indicator. Student response show that use of e-book as one of media learning can helps students to train science process skill. In addition, it also shows that students are very need media learning like e-book which developed for the other subjects. That statement about attitudes and science process skill assessment, and student response shows that e-book effective to use.

CLOSING

Conclusion

Results of this research are:

1. Validity includes of excellent category (91% of learning, 92% of materi, and 87% of media).
2. Practicality includes of good and excellent category (100% of implementation, its case was ignored)

3. Effectiveness,
   a. Attitude assessment includes of good and excellent category (54% of curiosity, 100% of cooperate, 100% of honesty, 100% of responsibility, and 50% of accuracy).
   b. Science process skill assessment includes of good and excellent category (71% of observe, 82% of classify, 57% of ask, 100% of formulate hypothesis, 100% of investigate, 89% of interpret, and 64% of communicate).
   c. Students' response of e-book includes of excellent category

Based on results, it conclude that development of e-book is feasibility for use and apply to students because it has validity, practicality, and effectiveness' result that accomplished in good and excellent category.

Suggestions

1. Format e-book most compatible in all laptop was in form of EXE.
2. The time limit can be overcome with add meeting, if learning not allow to be conducted only in one meeting course

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