DEVELOPMENT AND IMPLEMENTATION OF DIGITAL MODULES VIA FLIP PDF BASED ON 5.0 AT BINAWISATA VOCATIONAL SCHOOL, LEMBANG, WEST JAVA

Rini Andari
Andreas Suwandi
Endah Fitriyani

ABSTRACT

This study aims to develop digital module applications as quality learning media in the 4.0 learning era, making it easier for students to learn in the classroom and in the laboratory. This research is a development with a bord and gall model consisting of a needs analysis stage (Needed Assessment), a design stage (Design) and a development/implementation stage (Develop or Implementation). Places and research subjects to conduct a limited trial at SMK Bina Wisata Lembang on teachers and students of class X Hospitality. The digital module is a complete digital module from the first meeting material to the end. The digital module application development method used is a linear sequential model with several stages, namely analysis, design, coding, testing, and support, while the data collection techniques used are observation, interview and documentation techniques.

Keywords*:* digital plip pdf module, learning 5.0, Tourism Vocational School

INTRODUCTION

The development of technology and information is developing in the midst of the 4.0 evolution era and has changed the perspective on various things (Anealka Aziz Hussin). In the era of globalization, especially the evolution of 4.0, the development of technology and information has progressed very rapidly, especially in the field of education (Alex, 2019). The concept of education 4.0 is very different from 21st Century education, namely the characteristics of the world of work that distinguish the two, the world of work in evolution 4.0 changed the various types of work that existed and many jobs disappeared because they were no longer needed. Changing types of work require the younger generation to have new skills that must be possessed by school and university graduates. The demands in the world of work in the industrial era 4.0 can only be met if graduates become human resources forged from an educational process that meets educational standards 4.0, which is based on a cyber system. Thus, there is a need for the role of educational technologists in facilitating the learning process by providing technology-based learning resources. So that it really produces competent graduates. With this, it can reduce the unemployment rate in Indonesia, especially in global market competition.

Current technological advances demand innovation for systemic improvements to all components of education, especially learning media. In the learning process, the teacher cannot be separated from the learning media, because the media, known as an intermediary or delivery of information and messages from the sender to the recipient, is one of the alternatives or important supporting factors to realize effective and efficient learning. One of the benchmarks for the success of teachers in teaching is seen from how teachers transform knowledge to their students. Ahmed and Ahmed's (2005) research on students' perceptions of the use and benefits of instructional media in social lessons in Oman concluded that if schools want to improve the quality of their learning, it is very important for teachers to use instructional media. The use of technology in learning media can improve the quality of learning (Afrila and Yarmayani, 2018).

This is supported by Sadiman (2011) which states that the use of varied learning media can overcome the passive attitude of students, because learning media play a role in generating student enthusiasm for learning. The use of innovative learning media based on information technology has great potential to improve the quality of learning, because it is an effective and efficient way of conveying information (Imansari and Sunaryantiningsih, 2017). Products from information technology have provided alternative learning media in digital form, such as interactive multimedia-based electronic modules, or can be called interactive e-modules.
In the development of learning media, there are several types including print, transparency, audio, sound slides, video/film, interactive multimedia, e-learning, digital media. In this study, researchers used a type of digital learning media. Digital-based media is a learning strategy that can be used in schools. Through digital-based media in learning, students can create their own interest in understanding learning. Flip pdf professional based e-book is an alternative media that can be used by both educators and students. In this media there is a simulation that can help students in the learning process. Based on previous research conducted by Wavirotin and Yohanes Hadi S (2016) with the research title "Development of Electronic Book Learning Media (E-Book) for Economic Subjects with the Subject of International Trade Class XI IIS SMA Negeri 1 Talun Blitar. The results of the average percentage level of validity from material experts obtained by 88.97% with very valid criteria. In addition, research by Mulyani, Hidayat, and Lisnawati (2015) obtained the results of measuring learning independence using smartbook teaching materials of 84% in the good category. From this percentage obtained positive results that smartbooks can increase learning independence. The professional flip pdf-based e-book was chosen because this electronic book can be used as a source of independent learning, this electronic book is arranged based on the needs, and considerations of the developer's ability, and adapts to the program with the level of ease of implementation. E-books are books published in digital format, which contain text, images, and videos that can be read through computers or other electronic devices. Made with the help of professional flip pdf software.

Based on the background of the problems above, the authors are interested in conducting research on the development of professional flip pdf-based e-book media at Tourism Vocational Schools, especially in Bina Wisata Lembang Vocational Schools. With this learning media, the author hopes that vocational students become more active in the teaching and learning process so that they can more easily understand the material being taught so that learning objectives are achieved as desired.

METHODS

This study uses a Research and Development (R&D) research design, which is a research method used to produce certain products and test the effectiveness of these products. To be able to produce certain products, research that is needs analysis is used and to test the effectiveness of these products (Sugiyono, 2015).

The learning media development model used is the 1983 Borg and Gall research and development model in Silalahi (2018) which schematically the research stages of Borg and Gall 1983 include 10 steps, namely: (1) Potential and problems, (2) data collection, (3) Product Design, (4) Design Validation, (5) Design Revision, (6) Product trial, (7) Product revision, (8) Usage trial, (9) Final product revision, (10) Mass production. The data collection instruments in this study are: 1) Questionnaire. The questionnaire is a list of written questions that are submitted to the respondent to be answered at home after being answered, the questionnaire is returned a few days later to the researcher according to his agreement (Khairinal, 2016); b) Observation. Observation is conducting direct observations, observations can be made directly with tests, questionnaires, and various images, and sound recordings (Khairinal, 2016); and c) Interview. Interview is a data collection technique that is carried out through face-to-face and direct question and answer between the collectors, data and researchers to the informants. Interviews are one of the methods of collecting data and information that are carried out orally. During these interviews, data collection officers ask questions, ask respondents for explanations and answers orally, record important answers, or record voices during the interview process. The data analysis technique in this study is through a validity assessment sheet which will be assessed by material experts and media experts. Validation tests are carried out by involving practitioners who are experts in the relevant fields, namely material experts and media experts.

Based on the explanation above, a design validation will be held, where validation will be carried out which is related to learning media, namely E-Books based on professional flip pdf by several experienced validators.

RESULTS AND DISCUSSION FINDINGS

The results of this development research are (1) An e-book Knowledge of Ingredients, Tools and Cooking Methods. In the material Knowledge of Foodstuffs, tools and cooking methods (2) assessment of student learning independence on the use of professional flip pdf-based e-books obtained through questionnaires given to class XI students of SMK Bina Wisata Lembang, (3) assessment of student interest in learning towards the use of a professional flip pdf-based e-book obtained through a questionnaire given to class XI students of Tourism Vocational High School Bina Wisata.

The development of this e-book uses Borg and Gall development. Based on the development model, the procedure in this development is divided into ten stages as follows:

1.

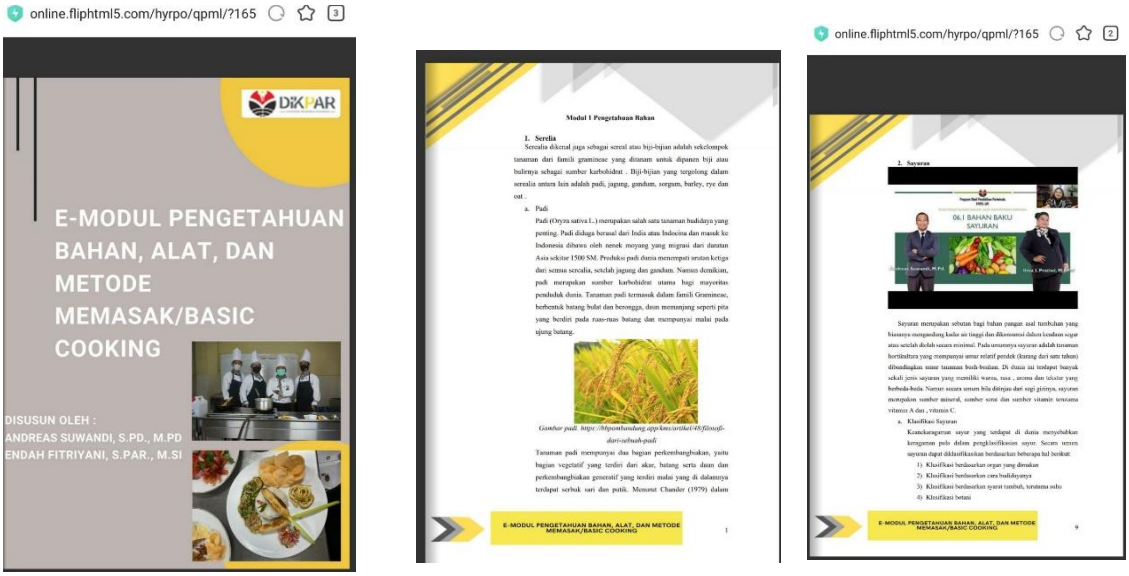
figure 1. Disscussion about facilities and infrastructure

Based on observations made by researchers at SMK Bina Wisata Lembang, information was obtained that the school is equipped with technological facilities to support student learning activities including adequate Information Communication and Technology (ICT) supporting facilities and infrastructure such as computer laboratories, Liquid Crystal Display Projectors (LCD projectors).), Android and internet network.

2.

Picture 2. Disscussion with teacher at SMK Bina Wisata

Data collection is carried out to collect and find out information about the needs of students for the product being developed. The researcher analyzes the results of interviews that teachers and students need E-Books that can minimize problems in the learning process to be more efficient and effective.

3. 

The next stage is to design a product in the form of an e-book using a professional flip pdf. The following are the steps in the preparation of product design: a) Creating material concepts that are in accordance with basic competencies; b) Creating ebook covers using Microsoft Word; c) Making (typing) material on an e-book, namely Knowledge of ingredients, tools and cooking methods in Microsoft Office Word 2007; d) On the Microsoft Word sheet, provide an empty space which will later be used to add videos/images; e) Save the document in pdf format; f) Find and determine images and videos that match the Material Knowledge material, cooking tools and methods; g) Open the flip pdf professional application, then select create new project; h) After that, the import pdf (image) window will appear. Here input the prepared pdf file by clicking “browse”, then import now; i) The initial project screen will appear, to combine cover, content, by clicking edit page; j) In the edit page window, add images, videos, and audio in the empty space provided; k) After the editing process is complete, click save and exit; l) Selecting a background in the templates menu to make the display more attractive; and m) Click apply change then click publish.

4.

Figure 2.4. Validation by experts, namely principals and teachers of SMK Bina Wisata

Design Validation. The validation test is carried out by involving expert teachers and school principals who are experts in the relevant fields, namely material experts and media experts. Based on the explanation above, a design validation will be held, where validation will be carried out which is related to learning media, namely E-Books based on professional flip pdf by several experienced validators.

Table 1. Validation Test Results

Validation test	Percentage	Interpretation
Media expert	87,30 %	Excellent
Materials expert	86,15 %	Excellent
Master of Hospitality	87,00 %	Excellent

a) Media Expert Validation The media expert validation results obtained an average value of 87.30% with the criteria "Good" with an average value of 3.7 because it belongs to the category 3,4 < 4.2 , with > 3 ,4 and “Valid” and deserves to be tested.
b) Material Expert Validation The material expert validation results obtained an average score (in %) is 86.15% with the criteria "Very Good" with an average value of 4.4 because it belongs to the category > 4.2 , with > 3, 4 and “Valid” and deserves to be tested.
c) Hospitality materials regarding knowledge of cooking materials and tools were scored 87.0% including good categories.

5.

Figure 2.5. E-module design revision

Design Revision. Revision is an activity that is carried out after the validation stage after and after receiving suggestions from the validators. a) Media Revision; and b) Material Revision.

6. Product trial. The product trial was conducted at SMK Bina Wisata Lembang XI on 20 students.

a) The results of the independent learning questionnaire assessment of the e-book media obtained an average score (in %) was 81% with the criteria "Good" with an average score of 4.1 including categories including category 3,4 < 4, 2, with > 3,4. From these responses, the researcher concludes that the e-book developed can be used in self-study.

b) The results of the questionnaire on learning interest in e-book media obtained an average value (in %) of 83% with the criteria "Good" with an average score of 4.1 including the category 3,4 < 4.2 , with > 3,4 and "High". From these responses, the researcher concluded that the developed e-book can be used in learning because it makes it easier for students to understand the material and students are more interested in learning to use this e-book.

7. Product Revision. After testing the product, the next step is to revise the product according to comments and suggestions from students. At this stage the students' assessment of the use of media in terms of independence and student learning interest questionnaires is good and there is no revision.

8. Trial Usage. In the use trial, it was carried out at SMK Bina Wisata Lembang class XI on 20 students.

a) The results of the independent learning questionnaire assessment results obtained. The results of the learning independence questionnaire assessment of the e-book media obtained an average score (in %) was 80% with the criteria "Good" with an average value of 4.0 including categories including category 3, 4 < 4.2, with > 3.4. From these responses, the researcher concludes that the e-book developed can be used in self-study.

b) The results of the questionnaire on learning interest in e-book media obtained the average value (in %) was 83% with the criteria "Good" with an average value of 4.2 including the category including category 3,4 < 4, 2, with > 3,4. From these responses, the researcher concluded that the e-book was developed and can be used in learning because it makes it easier for students to understand the material and students are more interested in learning to use this e-book.

9. Final Product Revision. After the use trial was carried out, the next step was to revise the product according to comments and suggestions from students. At this stage the students' assessment of the use of media in terms of independence and student learning interest questionnaires is good and there is no revision.

10. Mass Production. The last stage is mass production or the final product of e-book development research using a professional flip pdf on Knowledge Materials, tools and cooking methods have a decent and good quality to be used in the learning process at Tourism Vocational Schools.

ANALYSIS

The initial stage in this research is to see the potential and problems. Based on the results of observations made by researchers at SMK Bina Wisata Lembang, information was obtained that the school has been equipped with technological facilities to support student learning activities including adequate Information Communication and Technology (ICT) supporting facilities and infrastructure such as computer laboratories, Liquid Crystal Display Projectors (LCD projectors), Android and internet network.
The first step in making this e-book is data collection. What the researchers did was collect various materials used in making e-books in the form of various multimedia such as music, learning videos from the internet. Next, designing the product, the steps taken are to install the application used, namely: Microsoft Word, flip pdf professional. Prepare material knowledge of ingredients, tools and cooking methods and design the initial appearance of the e-book using Microsoft Word. The developed e-book was then validated by a material expert validator, which aims to determine the validator's assessment of the e-module using a professional flip pdf before the product is tested.

The results of media expert validation were carried out covering 4 aspects, namely, the aspect of using letters, the criteria aspect, the sound aspect, and the convenience aspect. With the average value (in %) is 87.30 % with the criteria "Good". Based on the results of the media expert's validation of the media design that has been developed, the average number of values is 3.7 because it belongs to the category 3,4 < 4.2 , with > 3.4 and "Valid" and deserves to be tested.

Furthermore, the results of material expert validation were carried out covering 4 aspects, namely, attention, aspects of pleasure, aspects of interest, and aspects of involvement. in the e-book that has been developed, the average score (in %) is 87% with the criteria of "Very Good". Based on the results of material expert validation in the e-book that has been developed, the average score is 4.4 because it belongs to the category > 4.2, with > 3.4 and "Valid" and deserves to be tested. After the e-book developed was validated, then this e-book was tested to determine the assessment of students' independence and interest in learning. Product trials carried out to students were carried out by distributing questionnaires of Independence and students' interest in learning to the developed e-books. This trial consists of product testing and usage testing. The trial was conducted in class XI SMK Bina Wisata Lembang. The trial implementation was carried out by explaining and demonstrating using a professional flip pdf e-book on the material Knowledge of ingredients, tools and cooking methods then students were asked to fill out a questionnaire of students' independence and interest in learning to find out how the students assessed this e-book.

CONCLUSION

The results of research and development of E-Modules on the subject of knowledge of materials, tools and cooking methods for class XI Hospitality get a percentage of 87.10 % which is stated to be good from expert validators, namely expert teachers and school principals. Comments and suggestions obtained from product experts are in the form of adding relevant videos and images to e-module products. Material validation on the E-Module got a validation value of 86.15% from material experts so that it was declared good. The product that was developed was declared practical to be applied to learning activities for knowledge of ingredients, tools and cooking methods in the concentration of Food and Beverage. So based on validation testing and practicality testing, the products developed by the E-module are declared good and practical for use by Tourism Vocational School students in the 5.0 learning era.

REFERENCES

Afrila, D. & Yaymayani, A. (2018). Pengembangan Media Pembelajaran Modul Interaktif dengan Software Adobe Flash pada Mata Kuliah Matematika Ekonomi di Universitas Batanghari Jambi. Jurnal Ilmiah Universitas Batanghari Jambi, Vol 18 No 3 pp 539-551.

Ahmed, Y.A. & Ahmed, H.A. (2005). Utilisation and Benefits of Instructional Media in Teaching Social Studies Courses as Perceived by Omani Students. Malaysian Online Hournal of Instructional Technology, Vol 2 No 1

Arsyad, A. (2014). Media Pembelajaran. Jakarta: PT Rajagrafindo Persada.

Asyhar, R. (2012). Kreatif Mengembangkan Media Pembelajaran. Jakarta: Gaung Persada (GP) Press Jakarta.

Fonda, A. & Sumargiyani. (2018). The Developing Math Electronic Module with Scientific Approach Using Kvisoft Flipbook Maker Pro for XI Grade of Senior High School Students. Infinity Journal of Mathematics Education, Vol 7 No 2 pp 109-122.

Imansari, N. & Sunaryantiningsih, I. (2017). Pengaruh Penggunaan E-Modul Interaktif terhadap Hasil Belajar Mahasiswa pada Materi Kesehatan dan Keselamatan Kerja. Jurnal Ilmiah Pendidikan Teknik Elektro, Vol 2 No 1 pp 11-16.

Martin, F., Hoskins, O. J., Brooks, R., & Bennett, T. (2013). Development of an Interactive Multimedia Instructional Module. The Journal of Applied Instructional Design, Vol 3 Issue 3.

Mulyani, Hidayat, dan Lisnawati. (2015). Pengembangan Bahan Ajar Smartbook Berbasis SainsUntuk Meningkatkan Kemandirian Belajar. Jurnal Pendidikan dan Pembelajaran, Vol. 1 No. 1. Pixyoriza. (2018). Pengembangan Media Pembelajaran Digital Book Menggunakan Kvisoft Flipbook Berbasis Problem Solving. Skripsi, Universitas Raden Intan, Lampung.

Nurmayanti, F. (2015). Pengembangan Modul Elektronik Fisika dengan Strategi PDEODE pada Pokok Bahasan Teori Kinetik Gas untuk Siswa Kelas XI SMA. Prosiding Simposium Nasional Inovasi dan Pembelajaran Sains. Bandung: ITB.

Nwosu, J.C., Chukwudi, J.H., & Ehud, M.M. (2017). The Use of Instructional Media among Selected Science Subject Teachers in Ilishan Remo Senior Secondary Schools Ogun State. Journal of Educational Policy and Entrepreneurial Research, Vol. 4 No 1 pp 61-71.

Omodara, O. D. & Adu, E. I. (2014). Relevance of Educational Media and Multimedia Technology for Effective Service Delivery in Teaching and Learning Processes Journal of Research & Method in Education (IOSR-JRME), 4(2), 48-51.

Prastowo, A. (2015). Panduan Kreatif Membuat Bahan Ajar Inovatif. Jogjakarta: DIVA Press.

Prihantana, M. A. S, Santyasa, I W., & Warpala, I W. S. (2014). Pengembangan Bahan Ajar Interaktif Berbasis Pendidikan Karakter pada Mata Pelajaran Animasi Stop Motion untuk Siswa SMK. E-Journal Program Pascasarjana Universitas Pendidikan Ganesha, 4, 1-12.

Raharjo, W.C., Suryati, & Khery, Y. (2017). Pengembangan e-modul interaktif menggunakan adobe flash pada materi ikatan kimia untuk mendorong literasi sains siswa. Jurnal Ilmiah Pendidikan Kimia Hydrogen, 5 (1), 8-13.

Rita, J. (2014). Pengembangan pembelajaran Multimedia interaktif berbasis internet pelajaran Bahasa inggris. Jurnal Teknologi Informasi & Komunikasi dalam Pendidikan, 1 (2), 2355-4983.

Slameto. (2013). Belajar dan Faktor yang Mempengaruhi. Jakarta: Rineka Cipta.

Sugiyono. (2015). Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R&D. Bandung: Alfabeta. Syahputra, Edy. (2020). Snowball Throwing Tingkatan Minat dan Hasil Belaja. Sukabumi: Haura Publishing.

Wavirotin, Z.C dan Yohanes. (2016). Pengembangan Media Pembelajaran Buku Elektronik (E-Book) Untuk Mata Pelajaran Ekonomi Dengan Pokok Bahasan Perdagangan Internasional Kelas XI IIS SMA Negeri 1 Talun Blitar. JPE-Volume 9, Nomor 2.

Yamin, Martinis. (2013). Starategi dan metode dalamModel Pembelajaran. Jakarta: Referensi.

Dr Rini Andari
Tourism Education Study Program
Universitas Pendidikan Indonesia, Bandung
Email: riniandari@upi.edu

Andreas Suwandi, S.Pd, M.Pd
Tourism Education Study Program
Universitas Pendidikan Indonesia, Bandung
Email: andreassuwandi@upi.edu

Endah Fitriyani, S.Par, M.MPar
Tourism Education Study Program
Universitas Pendidikan Indonesia, Bandung
Email : endahfitriyani@upi.edu