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VISIBILITY OF LEARNING MEDIA OF A CULINARY-BASED ELECTRONIC MAGAZINE IN BLENDED LEARNING

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ABSTRACT

This study aims to produce media products that use culinary-based electronic magazines on blended learning. The method used in this study was research and development. The procedure of media development used the Four-D model to produce learning media based on blended learning. The stages of the study consisted of define, design, development, and dissemination. The stages of development used alpha testing for product validation by learning experts, material experts, and media experts. After that the stages of dissemination, beta testing was performed by testing the product on users in small groups. The subjects of this study were students in foodservice expertise. The results of this study showed that the alpha tests on aspects of media and materials and learning both obtained very high criteria. Furthermore, the average score of all aspects was more than 89% with reasonable criteria. while the beta test results indicated high criteria with the average of students' reached 86%, categorized as feasible.

Keywords: culinary, electronic magazine, learning media

INTRODUCTION

The current technological revolution is producing an alpha generation that is very familiar with cyber-based life. This is also often known as the native digital generation with characteristics focused on creativity, dynamism, leadership and a strong connection to technology [1]. Not only that, the mindset of this generation in technology and networking has also changed thus digital skills and digital literacy are required to improve the ability of alpha generation [2]. Improving digital-based capabilities can be done through a virtual-based learning process. Virtual learning is in line with the philosophical pragmatism in which education as active interaction of independent students in learning to solve their life problems according to the times [3]. In addition, the policy of tertiary institutions with electronic-based learning continues to be encouraged. This has an impact on the use of new e-learning formats such as management systems or communication networks for students and lecturers[4] and encourages lecturers to develop mixed learning by enhancing technology-based learning experiences [5].

Learning can be developed through the Internet-based media of Things (IoT). Where to note the character of students in the 4.0 era is different from the character of students in the previous generation. This media development is based on student center learning strategies. This is reinforced from research that explains that students in the 4.0 era often use smartphones to find learning resources and assignments [6], [7]. Material that can be accessed anywhere. Nor can the desired digital book not only be seen in pictures or writing but also need a video to clarify the materials [8]. The media that will be developed will be the basis for increasing learning in the digital age. Learning media include tools that are physically used to convey the contents of teaching materials. In other words, the media is a component of learning resources or a physical vehicle that contains instructional materials in the student environment that can stimulate students to learn. The use of appropriate and varied media can lead to learning motivation, allow more direct interaction between students with the environment and reality, allowing students to learn individually according to their abilities and interests [9].

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One way to resolve the lack of electronic-based learning resources is through the use of technology in teaching. Books that were originally printed can be converted into electronic books [10]. One example of the types of electronic books that can be applied in the form of electronic magazines (e-magazines). The e-magazine is a learning resource that has interesting reviews with various supporting features such as pictures, videos, and audio [11]. Therefore this innovation magazine is needed to be one source of learning. Magazines usually contain a variety of writing topics that fit the purpose and topic of the magazine in question [12]. In addition to the digitization of the magazine becomes electronic. E-magazines are practical if used as a learning resource [11].

The development of e-magazines specifically on learning bakery and pastry is motivated by the difficulties of students in blended learning while the students are expected to be competent in accordance with technological developments. These competencies in making bakery pastry are required to develop ideas, creatives, and innovations based on theory, so the learning media used by lecturers must refer to learning in the digital age. Difficulties experienced can be seen in the low cognitive aspects of the stages of lamination and folding in pastry making. And also when viewed from the psychomotor aspects in following the stages of lamination and folding in pastry making. In addition, students also have difficulty in finding similar materials in making pastries.

Observing all of this, the urgency of research is based on learning media that have not been able to fully improve the cognitive and psychomotor aspects of students. In addition, research on the development of digital-based culinary magazines specifically focused on learning in vocational education is still not much done. Therefore this study will develop culinary based e-magazine whose objectives are to (1) produce media products that use culinary-based electronic magazines on blended learning; (2) find out culinary-based electronic magazines; and (3) assessing students' responses about the use of culinary-based electronic magazines on blended learning.

The benefits of e-magazine development consist of practical contributions in practical learning, adding learning media that is appropriate for era 4.0 for students and can be used as food practice guides. Moreover, it can be used as an alternative to virtual class-based learning for students. Theoretically, it can also be used as a reference for future research.

METHOD

This study used a research and development method with a development model adapted from Four-D (4D) [13]. The stages of the studywere started from (1) defining, analyzing and formulating the media to be developed; (2) designing e-magazine products; (3) developing and testing products by experts and testing the students' responses, and (4) implementation and dissemination of e-magazine. Clearly, these steps can be seen in Figure 1.

After the prototype e-magazine was developed, an alpha test and a beta test were carried out to determine product viability. The alpha test was conducted by learning experts, media experts, and material experts. The alpha test results were used as the basis for revision before the test was limited to 20 respondents. Meanwhile, the beta test was conducted on students in the field of foodservice expertise to determine the student's response to the product being tested. The beta test results were used as the basis for further revision and improvement. Data collection in this study used a questionnaire given in alpha and beta tests which can be seen in Tables 1, 2, 3, and 4.

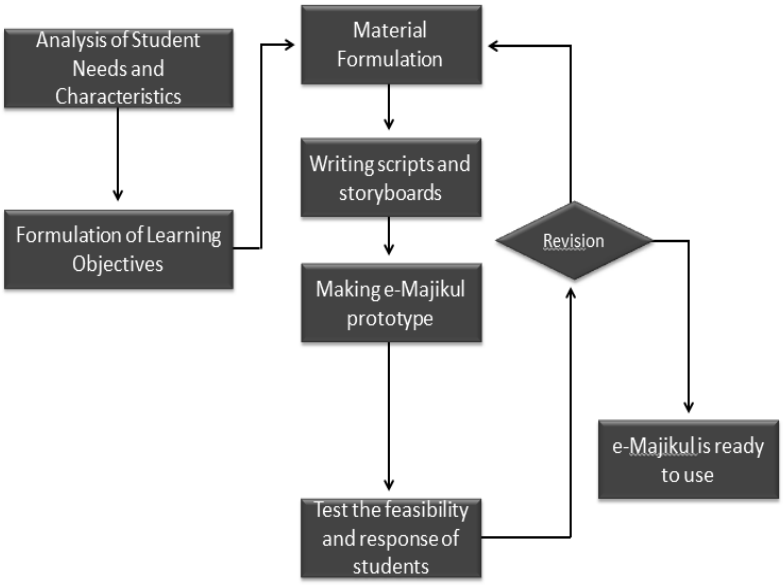

Figure 1. E-Magazine Development Steps

Table 1.The Content Outline of the Alpha Test Instrument (Learning Aspect)

Aspect	Indicator	Point of Statement
Language	The term is easy to understand	1, 2
	The materials flow is well ordered	3, 4
	Use clear technical language	5, 6
Learning Strategies	Encourage to read	7, 8
	Foster independence	9, 10
	Increase knowledge	11, 12
	Retention of material	13, 14
	Motivation	15, 16
	Improve psychomotor aspects	17, 18
	Use according to hours of study	19, 20

Table 2. The Content Outline of the Alpha Test Instrument (Aspect of Media)

Aspect	Indicator	Point of Statement
Software Engineering	Unique and innovative appearance	1, 2
	QR codes can be scanned	3, 4
	Easy to operate	5, 6
	Can be used repeatedly	7, 8
	not easily broken	9, 10
	according to the development of science and technology	11, 12
Visual Display	Colour	13, 14
	Letter	15, 16
	Picture	17, 18
	Video	19, 20
	Motivation	21, 22
	Image and texts placement	23, 24
	Design and background	25, 26

Table 3. The Content Outline of the Alpha Test Instrument (Material Aspect)

Aspect	Indicator	Point of Statement
Relevance of Material	Compliance with Semester Learning Plans	1, 2
	Learning outcomes	3, 4
	expected end ability	5, 6
	Learning indicators	7, 8
	Learning objectives	9, 10
	Conformity with scientific aspects	11, 12
Organizing the Material	easy to understand	13, 14
	in sequence	15, 16
	interesting	17, 18
	complete	19, 20
	actual	21, 22
	The material does not look abstract	23, 24
	Video is clear	25, 26
Discussion	Clear	27, 28
	Reference selection	29, 30
	learning concepts	31, 32

Table 4. Content Outline for Beta Test Instrumen

Aspect	Indicator	Point of Statement
Instructional	Material	1, 2
	Discussion	3, 4
Media	Video	5, 6
	Image	7, 8
	Text	9, 10
	QR code	11, 12
Usage	Guidance	13, 14
	Navigation	15, 16

After collecting the data, they were then analyzed by quantitative descriptive. This served to determine the feasibility of e-magazine. Data from the results of the media feasibility test were analyzed descriptively with 5 scale modifications presented in Table 5.

Table 5. The Value Conversion in the Scale of 5

Interval Scores	Grade	Category
X > IM + 1.8 ISD	A	Very High
IM + 0.6 ISD < X ≤ IM + 1.8 ISD	B	High
IM- 0.6 ISD < X ≤ IM + 0.6 ISD	C	Moderate
IM-1.8 ISD < X ≤ IM – 0.6 ISD	D	Low
X ≤ IM – 1.8 ISD	E	Very Low

Where:
X = actual score
IM = the ideal mean
ISD = ideal standar deviation

Table 5 shows the maximum and the minimum scores are 5 and 1 respectively, therefore the IM and ISD calculations are:

$$IM = ½ (5 +1) = 3 \quad (1)$$

$$ISD = 1/6 (5-1) = 0.67 \quad (2)$$

The provisions of scale 5 can be seen in Table 6.

Table 6. Data Conversion (Scale 5)

Scores	Scale	Criteria
X > 4.2	5	Very High
3.4 < X ≤ 4.2	4	High
2.6 < X ≤ 3.4	3	Moderate
1.8 < X ≤2.6	2	Low
X ≤ 1.8	2	Very Low

To get an average product rating score, it was used the following formula:

$$X_i = \frac{\sum x}{\sum a x \sum n} \quad (3)$$

Where Xi, ∑x, ∑a, and n are the average scores, total scores, total aspects observed, and the total respondents respectively.

RESULTS AND DISCUSSION

The main activities carried out at the analysis stage included an analysis of students' needs, analysis of Competency Standards (CS) and Basic Competency (BC), making media design (storyboard), setting and developing the materials, compiling questions and answers, reviewing lectures in accordance with the curriculum.

The analysis of students' needs was obtained from observations and observations during the learning process. The results obtained that students need materials that can be accessed anywhere. In addition, a video-based magazine is required to help students explore material lamination and folding techniques.

E-magazine-based media development is appropriate for students to use because, in the Pastry and Bakery class, all students have Android-based smartphones that can be used to access the materials. In addition, the results of the analysis of the need to use e-magazine are suitable for use by students with millennial characteristics, where learning can be accessed anywhere with attractive appearance. Excellence magazine that will be developed in accordance with the Semester Learning Plan (SLP) and competencies that must be possessed by students. Not only students but lecturers also need interactive media to help lecturers in the learning process so that it runs smoothly. The need for lecturers for interactive learning media is because Tri Darma must be done simultaneously, as well as the large number of materials that must be delivered effectively and efficiently. So the e-magazine in the subject of Danish and croissant pastry can function as enrichment materials for students.

The results of the analysis stated that the development of e-magazines on learning Bakery and Pastry is based on blended learning. Blended learning is one of the transformations of traditional learning with technology and information-based learning [14]. In this case, learning can be accessed online or offline. Where learning requires appropriate media to help the students [5]. In this study, the students have the attitude to learn independently. This is in line with several other studies where the

results of the analysis of students' needs have obtained a lack of innovative learning resources [11], [15]. The lack of learning resources makes lecturers never provide digital-based media on learning. Whereas the students need methods and media to increase learning motivation and independent learning processes.

Interactive learning media products produce e-magazine prototypes through the application of several applications namely scanner, canva, and pdf on the subject of pastry. The subject of danish and croissant pastry is taken from the determination of the materials that look at the curriculum and CS and BC. Curriculum assessment serves to harmonize the materials so as not to deviate far from the concepts being taught. The establishment of SLP pastry and bakery resulted in the design of danish and croissant pastry material. Danish and croissant pastry is applied in e-magazine development material because the material has difficulty in lamination techniques and covering pastry dough.

The material designs refer to curriculum and CS and BC as follows: (A) Cover, (B) Editor, (C) Table of contents, (D) Pastry history (danish and croissant), (E) Material: (1) Main ingredients; (2) Additional ingredients, (E) Tool: (1) Large tools; and (2) Small tools, (C) Recipe, (E) Technique of making Danish and croissant pastry: (1) Folding technique: (a) Single, (b) Double; (2) Lamination technique: (a) England, (b) English, (c) Franch, (d) Scotland

The next step was designing e-magazine products through storyboards to find out the content and design of each material provided. Storyboarding functions to facilitate product development. The storyboard display can be seen in Figures 2 and 3.

The making of the e-Magazine prototype was carried out after the design phase and the design was completed without revision. This was done in order to minimize the overhaul of too many materials and designs. Furthermore, the development of a prototype begins with upload and learning videos to YouTube. Furthermore, the uploaded video link is created using a QR code scanner application. The learning video that has been changed on the QR code can be seen in Figures 4 and 5.

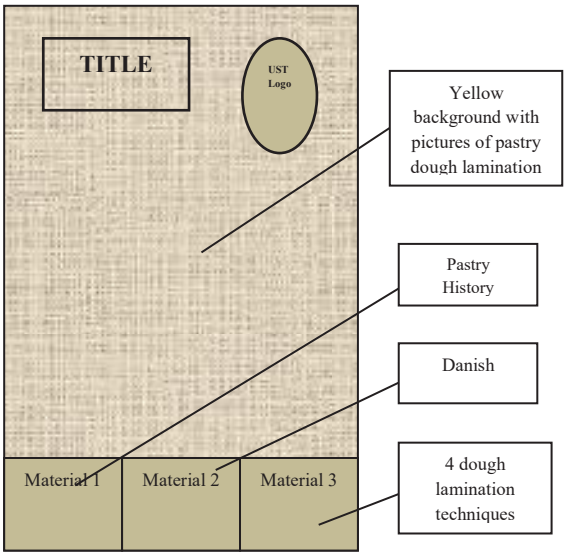

Figure 2. Display of Storyboard of E-Magazine Cover

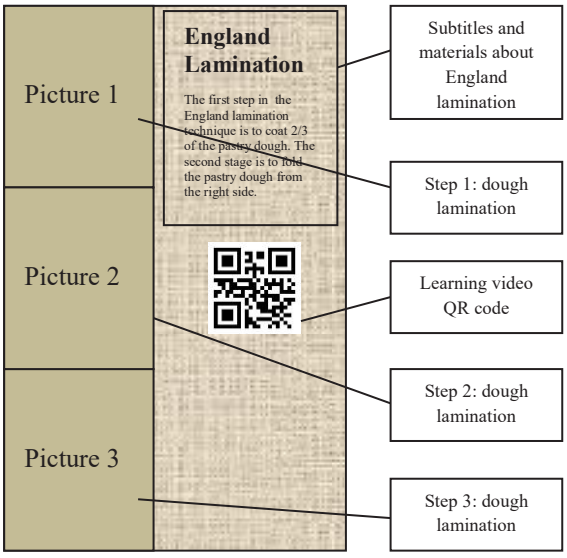

Figure 3. Display of Storyboard of e-Magazine Content

Materials placement was adjusted to the storyboard and continued to design using the canva application. The prototype e-Magazine can be seen in Figures 6 and 7.After the magazine draft is complete, the user can be accessed via a smartphone or laptop with a pdf version. Besides learning, videos can be seen using a QR code application.

Figure 4. Display of Videos Uploaded on YouTube

Figure 5. Display of the Video QR code

Figure 6. Display Prototype Cover e-Magazine

Figure 7. Display of Prototype Contents of E-Magazine

The next step was to test the prototype through alpha testing to find out if e-Magazine can be used and one of the revisions before beta testing. Testing through various smartphones and laptops was performed to make sure the prototype can be read and seen correctly. Based on the results of the trial, it was obtained e-Magazines that can be read and accessed by learning videos. The next step was testing the feasibility of the product and the students' responses in the form of a questionnaire. Learn alpha was used to review the aspects of media, materials, and learning. Alpha test results can be seen in Table 7.

Table 7. Material, Learning, and Media Alpha Test Results

No	Assessment Aspect	Percentage	Criteria
1	Material	88 %	High
2	Learning	86 %	High
3	Media	93 %	Very high

The Alpha test results showed that e-magazine meets 88% of material aspects, 86% aspects of learning, and 93% aspects of media. Therefore the level of eligibility can be categorized as very highAfter the e-magazine was considered feasible, the next step was to do a beta test to determine the students' responses. Beta test results on instructional, media and usage aspects can be seen in Table 8.

Table 8. Instructional, Media and Usage Beta Test Results

No	Assessment Aspect	Percentages	Criteria
1	Instructional	87 %	High
2	Media	85 %	High
3	Usage	86 %	High

While the results of beta tests on students found that e-magazine is good for learning. With instructional aspects as much as 87%, media aspects are 85% and 86% are on usage aspects. So based on the results of the beta test, obtained an average value of 86% student response. Where both tests are considered feasible and applied well in learning Bakery and Pastry

In terms of aspects of the materials, learning and media, the e-Magazine is considered to be feasible to be applied in learning. This is in accordance with the characteristics of digital-based media, where the media is very interactive used in learning in the 4.0 era [16]. Some lecturers think that media is very practical to be used in helping the learning process [17]. In addition, the media can help students understand the materials well. This understanding can be assessed by increasing students' learning outcomes [15]. This increase is marked by the ease of access to learning through smartphones and laptops[18]. Where the use of media is appropriate for use in learning [19]. The development of the media is one source of learning in blended learning. This helps lecturers improve collaborative learning [14], [20].

The development of electronic magazines is one way to turn teacher-centered learning into student-centered learning. Where multimedia can increase learning interest and students' retention [9], [21], [22]. The challenges of learning can be bypassed and keep up with technological developments.

CONCLUSION

The results of this study are in the development of culinary-based electronic products in blended learning that have been adapted to semester learning plans. The e-magazine is equipped with text, images, and videos that can be downloaded via QR codes. As a learning medium, e-magazines are categorized as feasible by experts in materials, learning, and media with an average of 89%. Material criteria, learning and media scores are 88%, 86% and 93% respectively. In the beta test from instructional aspects, the media and e-magazine discussions were considered appropriate by all respondentswith an average of 86%. The benefit of the development research can be used as one of blended learning and also as study materials for further research.

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