Development of Electronic Magazine Based Teaching Materials As An Innovation for Learning of Culinary Students in The Digital Era

Dian Agustina[1], Fatma Tresno Ingtyas[2], Mawadda Azizah Sari Waruwu[3*]

{Dianagustina@gmail.com[1], tresning2@gmail.com[2], mawaddaasw@gmail.com[3]}

Faculty of Engineering, Universitas Negeri Medan, Medan, Indonesia

Abstract. The use of learning resources in the teaching and learning process can increase new motivations and desires and bring a positive influence on students, especially in today's rapid technological era. Advances in packaging some pastry science in one print media in the form of electronic magazines into innovative learning resources containing content accompanied by colored images with structured grammar, attractively packaged and displayed simply to make it easier to understand the concept of the reading content. The purpose of this study is certainly to produce electronic magazines as learning innovations for Tata Boga students in obtaining pastry materials and recipes, and to find out the influence of electronic magazines on students' mastery of learning in pastry practice. The method used in research type research and development (Research and Development). This research was conducted at the Tata Boga Laboratory, Medan State University. The resulting output is in the form of an electronic magazine. The validation results of media experts are known to be 82.5% with valid categories. The validation results of material experts obtained 87.60% with a very valid category. Furthermore, the results of the mastery test were carried out on 3rd semester food students by obtaining an assessment of 90.65% with an excellent category. So it can be concluded that the use of teaching materials in the form of electronic magazines as learning innovations for Tata Boga students is suitable for use in pastry learning.

Keywords: Development, Electronic Magazine, Pastry.

1 Introduction

Education is very important in developing the potential that exists in oneself, especially in the face of the rapid development of the technological era today. The importance of media that helps learning has begun to be felt by lecturers and students. The management of learning aids is urgently needed. In line with the online lectures that are carried out today, electronic media and teaching materials are needed, which can be accessed anytime, anywhere and are easy to open. Of course, there must be adjustments and balances with the learning process carried out both offline and online. Theprogress of science and technology makes the development and change of human civilization will continue and demand that humans enter the era of globalization. The demands of professional services in various sectors of life are deepening and the quality of human resources in accordance with people's expectations is increasingly needed. Improving the quality of human resources needs to be prepared from an early age to face the demands of changing times. The use of media must be a part that must receive the attention of lecturers / facilitators in every learning activity. Therefore,

lecturers/facilitators need to learn how to determine teaching materials and learning media so that learning objectives are effective in PBM [1].

Pastry is one of the courses taught to Tata Boga students. Based on the results of surveys in the field, it is known that in the nature of the Pastry learning process, lecturers use recipe books as a medium to convey learning and this makes students saturated in following the teaching and learning process. This causes students to tend to be passive in the learning process, so they only become recipients of information from lecturers. Monotonous Pastry learning techniques, using verbal communication, bore students. The application of conventional learning methods or lecture methods by lecturers causes students to lack broad opportunities to convey ideas or works, develop experiences, and their potential. It can be seen from the lack of motivation of students in asking questions and the lack of soft skills of students in practice making mastery of theory and recipes in practice very low [2].

Based on these circumstances, this research was conducted to develop teaching materials in Pastry learning by innovating teaching materials in the form of intractive electronic magazines that present a different atmosphere by arousing curiosity, student interest in opening, seeing and reading the teaching materials. So as to make students motivated to easily understand and enthusiasm to learn new knowledge [3]. Learning motivation in learning is a driving factor for the willingness to achieve the goals of lectures. So, lecturers providing knowledge should create interesting teaching material media in accordance with the development of information technology devices today, in the form of sophistication tools to access the electronic magazine.

Information media technology continues to emerge with various types of *brands* and types of electronic magazine creation developing [4]. For example, in electronic media such as laptops and cellphones that have appeared in various types and are still developing, making electronic magazines try to create and update their application systems so that they can be used in various types of electronic media. Electronic magazines no longer use shoulder material paper to write articles like magazines in general, but rather in the form of digital files that can be accessed through electronic media such asComputers, Laptops, *mobile phones*, *BlackBerry*, Android, iPhone, iPad and other technologies.

Magazines are one of the reading media used by humans to meet information needs. Along with the development of technology, namely with the advent of the Internet, conventional magazines have become less attractive to the public [5]. This makes some conventional magazines try to take advantage of the pace of this technology by digitizing the process into electronic form in the hope of surviving and maintaining the existing market share. In this case, every student already has a cellphone or leptop as a means and means to learn, making it possible to use teaching materials in the form of electronic magazines [6].

Based on these problems, this research was conducted to develop learning teaching materials in the form of Electronic Magazines as innovations in learning so as to improve mastery in understanding the material and practice in the Pastry course.

2 Research Method

This research is a type of research and development or Research and Development (R&D). Metode research used to produce a particular product and test the effectiveness of that product. The product developed is Eletronic Pastry Magazine. This research procedure adapts to the Borg & Gall development model [7], as described below:
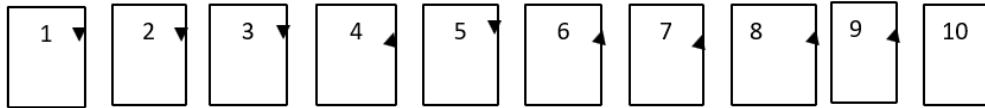
Figure 1. Development Procedure Scheme Adapted from Borg & Gall

Implementation :
1) Analyze and collect data
2) Plan the product.
3) Processing the initial product
4) First trial of the product
5) First product revision
6) Trial of both products
7) Revoperational contents
8) Pengujian end product;
9) Final revision;
10) Implementation;

From the model development scheme above, the researcher refers to the ninth procedure of the above stages, in this study the researcher does not cover up to the tenth stage, namely dissemination and implementation due to time constraints and so on [8]. Through the above procedures, it can be realized and developed into a form of technical planning targets and types of activities that researchers will carry out at each stage.

The subject of this research was carried out by 2 validator lecturers of media experts and appropriate material experts in the field of science developed, trials were given to Tata Boga students in semester 3 with limited class determination, determining experimental classes and control classes. Where the instruments used consist of questionnaires and student response test questionnaire sheets on the output of electronic magazine products, and mastery instruments in the form of several test questions related to the field of pastry science content of the product [9].

3   Results and Discussion

The development of electronic magazine teaching materials as an innovation in Pastry learning has been made by referring to the Borg & Gall implementation procedure scheme which consists of several stages of implementation, starting with analyzing / surveying the field, planning products, testing products to revising products to the final stage, finally dissemination and application [10]. Of course, the stages of this procedure are carried out in research and development to produce product outputs from this research that are valid, practical, and effective.

a. Analyze and collect data

In this study, the first thing to do is to conduct an initial survey of a problem related to pastry learning and what are the weaknesses and shortcomings during the teaching and learning process so that the activeness value of students is low. From the results of the survey, it will be analyzed what is the complement and the material that will be used and developed. Material analysis is carried out to find out the extent of the absorption of students' knowledge, so that the development of pastry magazine products can be utilized properly and is really needed.

b. Plan a product

In this planning, the stage of designing an electronic magazine is arranged in a flipcart way, which contains materials, recipes and steps from Pastry's theory of practice [11]. Based on this preparation, the collection of materials was carried out which was included in an electronic magazine consisting of pictures, backgrounds, and recipes.

In figure 1, the design results of the produk teaching materials of the Pastry electronic magazine.

Figure 2. Display of the contents of the electronic magazine Pastry

On this page, the products of Pastry's electronic magazine will talk about the Development and Definition of Pastry, what is pastry, as well as the ingredients used in pastry processing. Explanation of each Pastry material along with images and sources.

Figure 3. Image Display

The design of each page is considered, the layout of the image must also look attractive and clear and colorful so that readers or students can be interested in understanding more easily.

c. Product trials

At this stage, the product will be tested on Tata Boga students in semester 3 of the Pastry course. The trial of magazine teaching materials was carried out after the pretest was first

given. To see the extent of the material comprehension ability of the previous teaching materials. As for the technique of implementing product trials, it requires a control class and an experimental class. This activity aims to observe the results that will appear later, therefore the researcher asks for the help of one of the effective lecturers as an observer. The result obtained on the control class pretest was 64.31 categorized as "good". Meanwhile, the experimental class obtained an average score of 82.23 in the "good" category. After conducting pretest assessments in control and experiment classes, researchers conduct posttests in control classes and experimental classes. This assessment is carried out after using magazine teaching materials for experimental classes and in control classes lecturers in kuliah eyes explain the material with manuals that have been compiled by researchers. It is known that in the posttest activities carried out the control class obtained a score of 83.14% with the category "good", and the experimental class 93 with the category "excellent".

d. Product Revisions

This research product is designed and made after going through several stages, namely media expert validation, material expert validation, product trials, finally revisions to later to the application to students to be suitable for use and can be utilized as well as possible. The assessment of this electronic magazine was carried out by 1 media expert lecturer, Mrs. Dina Ampera. The results of the validation assessment by media experts in table 1.

Table 1. Validation results by Media Experts.

No	Category	Average Percentage (%)	Criterion
1	Magazine Content Design Aspects	88.75	Highly Valid
2	Cover Design Aspects	87, 5	Highly Valid
	Average	82.5	Valid

Based on table 1 it is known that the developed product belongs to the Valid category. Furthermore, the validation of material experts, the validation of the mataeri expert in this study is Mrs. Ana Rahmi, as a Lecturer in the Effectiveness of the Pastry course, it is known that the results of the questionnaire can be seen below:

Table 2. Validation results by Material Experts.

No	Category	Average Percentage (%)	Criterion
1	Eligibility Aspects of Magazine Content	82.75	Highly Valid
2	Eligibility Aspects of Prosecution	85, 5	Highly Valid
	Average	87,06	Valid

Based on table 2 above, it states that the product developed is included in the Valid category. Product trials were carried out on students who had received control classes before, and had ultimately studied Pastry material. The following trial results are presented in the Table 3.

Table 3. The results of the trial by students.

No	Category	Average Percentage (%)	Criterion
1	Eligibility of contents	90.75	Excellent
2	Language eligibility	91	Excellent
3	Material	90,3	Excellent
	Average	**90,65**	**Excellent**

Based on table 3, it is known that the average student attractiveness score for the use of Pastry electronic magazines is 90.65, stating that the products developed are in the excellent category.

e. Implementation

At this stage, the product will be implemented anddeveloped in its use to see the influence of the use of the product's output on the results of students' mastery of learning with the theory and practice they are engaged in. To obtain data results from product outputs, it is carried out by distributing questionnaires to students through a google form that is shared via whatsap.

From the validation results by media experts and material experts, it shows that the product developed is based on the design feasibility aspect of the cover, the content feasibility aspect, including the category worthy of trial and in accordance with the criticism and advice of media experts. This means that electronic magazines are included in the valid category based on the criteria.

Furthermore, the results of user assessments by 30 students with an average of 90.65% showed from all aspects of the category very good. This is the same as the results of research by Srikandi, et al. that the results of validation by material in electronic magazines are classified as good. In addition to assessing post-test results using media, different test results are also assessed for the achievement of each character value given, different test results are obtained against material values based on the results of independent t-test sample calculations against the acquisition of student character achievement standards.

In order to research this product with previous research, electronic magazines have become a form of teaching materials that are online by containing the content of the material in the form of articles, with an illustrated and colorful layout so that it becomes an attraction for those who see and read. This makes it easier for students to learn pastry, and is easy to access anytime and anywhere, of course, it helps students in independent learning [12].

Based on the test results that have been carried out for the entire product, it is known that the final assessment that the teaching materials that have been revised and developed are feasible to be applied to all Tata Boga students and the general public, so that the knowledge provided can be conveyed properly and truly utilized.

4 Conclusion

Based on the results of research on the development of electronic magazines as innovations in the learning of Tata Boga students in the online period, the following conclusions were obtained:

1) The results of research on the development of electronic magazines as innovations in the learning of Tata Boga students in the online period have very good validity. This can be seen from the results of the validation test by media experts who obtained an average value of 82.5% with valid categories and the results of validation tests by material experts who obtained an average value of 87.60% with valid categories.
2) The development of electronic magazines as an innovation in the learning of Tata Boga students in the online period has a significant influence on the mastery of learning outcomes from Pastry material so that it provides maximum results in praktel, it is known that the percentage value is 90.65% very good category.

The advice for this research is for educators. The results of this development can be used as an alternative teaching material in introducing pastry material to students. This product can spur students' enthusiasm to engage in learning, especially when lecturers explain the course.

Acknowledgments

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