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Massive Open Online Courses (MOOCs) Content Development Using Tudiamipa

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Abstract. Massive Open Online Courses (MOOCs) are present as a problem faced at the time of the Covid-19 pandemic. MOOCs is an online/online-based learning system that can be accessed through the internet network, so that learners today can-do teaching and learning activities no longer limited by space and time as they please. The development of MOOCs in FMIPA Unimed was carried out in 2020 under the name TUDIAMIPA which can be accessed at <http://:leraning.tudiamipa.com>. Tudiamipa itself is a MOOCs System developed to answer the problem of learning activities during pandemic Covid 19. Tudiamipa is also present to improve student competence such as the creation of learning media, animation creation, and laboratory management skills. Tudiamipa is a solution that needs to be implemented in the current Covid-19 pandemic conditions. In addition, the MOOCs System with Tudiamipa also provides opportunities for Students to get a certificate of assistance after participating in learning in Tudiamipa. The development of material content on the MOOCs system is obtained from material expert validation of 3.84 and media experts of 3.66 thus it can be concluded that this material is worth using.

INTRODUCTION

Currently the whole world is facing Corona Virus Disease (Covid-19). Covid 19 was declared a pandemic by the World Health Organization (WHO). To anticipate and reduce the spread of Covid 19, the government issued a policy to limit activities outside the home, such as working from home, teaching, and learning activities from home, and worship activities from home. By implementing the policy of activities at home is expected to reduce the spread of Covid-19.

As an effort to implement teaching in schools during the Covid-19 Pandemic, the Ministry of Education has issued Circular Letter No. 4 of 2020 which discusses the mechanism of National Examination (UN), learning process, graduation exam, Class increase exam, admission of new learners (PPDB), and use of school operational assistance during the Covid-19 period [1]. In the process of teaching and learning activities in this circular explained that, first the learning process is done online, secondly learning is focused on life skills education, third learning activities can vary, fourth there must be evidence or products of learning activities from home are given qualitative feedback.

Massive Open Online Courses (MOOCs) are present as a problem that was faced during the Covid-19 pandemic. MOOCs is an online-based learning system that can be accessed through the internet network, so that learners today can-do teaching and learning activities no longer limited by space and time as they please. Currently there are various MOOC platforms available on the internet that have various fields of learning with quality content where most MOOC providers come from abroad and are presented in English. At the beginning of its appearance, MOOC received an overwhelming positive response. In 2011 one of the MOOC staffed by lecturers from Stanford University in the United Kingdom recorded the number of applicants for one of its course materials reached 160,000 people from all over the world [2]. Some of the existing MOOCs platforms include, Coursera, Udacity, edx, Khan Academy, and Duolingo [3].

In Indonesia online courses have not been so popular. A survey conducted by dailysocial.id conducted to 1023 people showed that 51.11 percent of respondents had known about MOOC, the rest did not know at all. Of the total know-how, the majority (79.77 percent) have never tried to use the service for an alternative to learning. A significant reason why Indonesians have not used the internet to access first is because there is no time (45.94 percent), then internet connection constraints (32.94 percent) and service prices that are considered expensive (27.66 percent) [4].

The development of MOOCs in FMIPA Unimed was conducted in 2020 under the name TUDIAMIPA which can be accessed at <http://:leraning.tudiamipa.com>. Tudiamipa itself is a MOOCs System developed to answer the problem of learning activities during pandemic Covid 19. Tudiamipa is also present to improve student competence such as the creation of learning media, animation creation, as well as laboratory management skills. The results of media feasibility trials using ISO 9126 Tudiamipa are categorized as feasible and can function properly [5].

MATERIALS AND METHODS

Advances in information and communication technology / Information and Communication Technology (ICT) enable the development of online learning resources. Online Learning Resources allow the learning process to achieve in the form of "complex skills" needed in the global era while allowing the existence of Student centered learning [6].

Web-based learning media supported by databases, is one of the alternatives that can be used as one of the alternative methods that are effective. This web-based learning medium consists of learning materials, audio, and learning evaluation [7]. The results of the website-based learning media trial also showed excellent results, where 93% of participants said it was very interesting [8].

MOOCs were first introduced in 2006 and emerged as a popular learning mode in 2012.[9]. MOOCs presents it as a new model of education and learning, which uses the internet to deliver lecture materials at the world's prestigious colleges and educational institutions, creating a kind of revolution and these people join each other to do sustainable courses. This continuous learning model is referred to as "Massive Open Online Courses" or abbreviated as "MOOCs"[10]By creating a model of learning from sharing the corners of the world available to anyone, each student can access to programs offered by sharing colleges, educational institutions and educational organizations. MOOCs is an online-based learning model that can be accessed by everyone around the world for free [11]. While there are concerns that this could bring disruption and reduce the quality of education in colleges, MOOCs can redefine the concept of college education by providing new learning opportunities for prospective students at faculty and universities to gain the best possible skills.

The location of this research was conducted at FMIPA Universitas Negeri Medan with research time in the odd semester 2021/2022. The research population is all FMIPA students at Universitas Negeri Medan and the research sample is students who take it-based education media development design courses at FMIPA Universitas Negeri Medan. The methods used in this research are research and development. In research and development methods there are several types of models. The model used is the development of the 4-D model. The 4-D (Four D) development model is a learning device development model. It was developed by S. Thiagarajan, Dorothy S. Semmel, and Melvyn I. Semmel [12]. The 4D development model consists of 4 main stages: Defining, Design, Development and Deployment. This method and model were chosen because it aims to produce Content on the TUDIAMIPA System in the form of tutors creating IT-based learning media. The developed product is then tested for feasibility with validity and product trials to find out the extent of the increase in learning motivation and learning outcomes of learners.

Validation trials are conducted by providing questionnaires of research instruments, questionnaires used have a scale of 1-4 for validation of material, image, video, and audio content. The score obtained is quantitative data that will be converted into quantitative data, using the Likert Scale. The main principle of the Likert scale is to determine the location of a person's position in a continuum of attitudes towards the object of attitude ranging from very negative to very positive [13]. The data analysis technique used in this study is a quantitative data analysis technique, using the following equations:

$$Average = \frac{Total\ Number}{Maximum\ Number\ of\ Value} \tag{1}$$

TABLE 1. Eligibility category value

Average	Category
3,26 - 4,00	Very worthy

2,51 - 3,25	Decent
1,76 - 2,50	Decent Enough
1,00 - 1,75	Less worthy

RESULTS AND DISCUSSION

From the results of this study obtained MOOCs content with material to create Flat animations using Flash. Some of the material content that will be delivered is Introduction to Flash Animation, Installation and Introduction of Tools, Symbol Creation and functions, Frame By Frame Animation Creation, Tween Motion Animation Creation, Masking Animation Creation and Simple Learning Animation Creation. here's a picture of the material description display.

35 students 15 lessons 0 quizzes 8 week duration

Overview Curriculum Instructor Reviews

DESKRIPSI COURSE

Course ini merupakan panduan dalam membuat animasi flat menggunakan Adobe Flash atau Macromedia Flash dimuali dari dasar hingga menghasilkan produk berupa media pembelajaran.

PERSIAPAN

Adapun yang harus di dipersiapkan adalah sebagai berikut :

- Laptop/Computer Minimal Dual Core
- Software Adobe Flath (diarankan Menggunakan Adobe Flash CS 3 atau Macro Media Flash
- Mouse

KURIKULUM

Pendahuluan

1. Pengenalan Animasi Flash
2. Pemasangan dan Pengenalan Tools
3. Pembuatan Symbol dan Fungsinya

Pembuatan Animasi Dasar

4. Pembuatan Animasi Frame By Frame
5. Pembuatan Animasi Motion Tween
6. Pembuatan Animasi Masking
7. Pembuatan animasi pembelajaran sederhana

Pembuatan Media Pembelajaran

8. Desain Pembuatan Template Media
9. Pembuatan Opening Media
10. Pembuatan Material Menu

FIGURE 1. Description of material creates flat animations using flash

In the content of the material is also prepared minimum standards of devices that must be used by learners and the process of preparing supporters equipped with video, the following is a performance of the material.

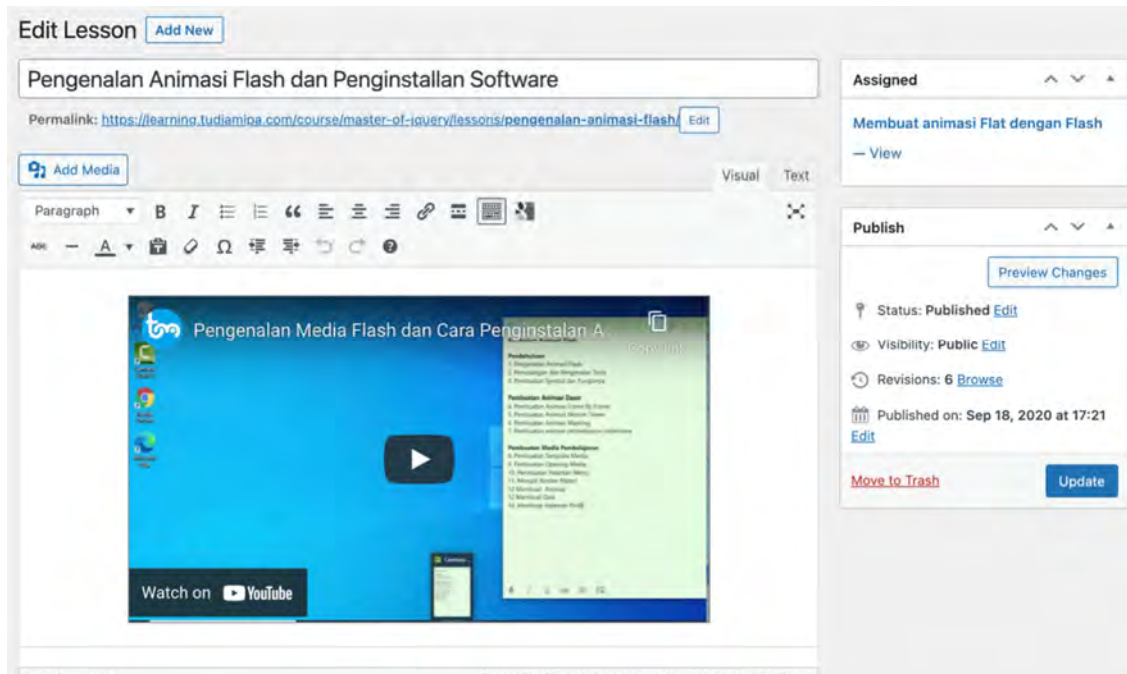


FIGURE 2. Image of material in tudiamipa

The results of the trial of each validator are calculated with validation aspects to find out the feasibility of the teaching material and calculated eligibility per part of the material content. From the table below it can be concluded that the assessment of expert validation of the material obtained an average value of 3.84. Based on this data it can be concluded that this material in the category is very feasible. the results of expert validation calculations of the material are shown in the following table.

TABLE 2. Material expert validation results

Aspects	Average
Content	3,62
Language	3,6
Picture	4
Video	4
Audio	4
Average	3,84

The results of the trial of the aspect of learning media that have been developed we can see in the table below; the average value of learning media validation results is 3.66. Based on this data it can be concluded that the content material developed is very good.

TABLE 3. Media expert validation results

Aspects	Average
Design of Content	4
Picture	3,66
Video	3,4
Audio	3,6
Average	3,66

The results of a small trial conducted on 30 students obtained results as can be seen in the table below. The average small class trial result was 3.55. Based on this data it can be concluded that the content developed is very effective and worth using.

TABLE 4. Small class trial results

Aspects	Average
Content	3,6
Language	3,5
Message Design	3,7
Picture	3,6
Video and animation	3,5
Audio	3,4
Average	3,55

CONCLUSION

From the results of research on the development of learning content in tudiamipa using a 4D development model obtained expert trial results of material obtained an average value of 3.84 which from the results of the design of this learning content is very feasible. From the results of trials conducted by media expert validators obtained an average value of 3.66 where the results of validation of this media expert can be concluded that this developed media is very suitable for use. The results of a small trial conducted on 30 students obtained an average score of 3.55 where this result can be interpreted that the material content developed is worth using and can improve understanding. Based on the above data can be said the development of MOOCs-based learning content using TUDIAMIPA with flat animation making material using Flash is suitable for use with an average value of 3 trial results of 3.68 where these results state the content developed with the media used is suitable for mass use.

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