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Development of Blended Learning Designs using Moodle to Support Academics of The Curriculum in University of Bengkulu

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Abstract

The aim of this study is to create a high-quality blended learning model using moodle and an ADDIE development step. This research results in a blended learning model based on components and learning model tools, as well as an e-learning moodle guide for lecturers and students. Based on expert validation assessments, the resulting blended learning model is of great quality. This blended learning model can help teachers navigate the complexities of BL, such as the integration process and navigation of essential learning activities and seek to involve, prepare, and support learning that has integrated online learning and F2F learning activities. Blended learning products are also developed to make it easier for lecturers to implement blended learning into the learning process and to make it easier for students to participate in learning activities according to the components of blended learning.

Keywords: *Blended Learning, Moodle Guide, Components*

Introduction

Technology's advancement in the increasingly sophisticated digital era makes technology more than just entertainment because technology has an impact on changing human life activities as well as in an education system. Technology can also influence the way you think, learn, and interact. However, changing the instructional approach is not an easy task, especially when technology is involved in the learning process. The National Education Association (NEA) says technology provides easy access and has changed the way things work. Technological developments have an influence on the educational process in Indonesia. This begins to develop learning activities by utilizing technology, such as the development of educational TV, Elearning, online course platforms, and interactive learning multimedia.

In its implementation, Indonesia has not implemented a full online learning process for the level of formal education. However, all that changed in 2020 when the Covid-19 spread, which caused paralysis from various sectors, one of which was in the education sector. Since March, based on the decree of the Minister of Education and Indonesian culture, schools have closed schools and implemented an online learning process. This condition makes the government have to present alternatives to adopt technology into the learning process. This policy causes all schools in Indonesia to experience acceleration in determining the right steps to carry out online learning activities or distance education. With a good education system, it is hoped that it can produce quality human resources who are able to adapt themselves to live in society, nation and state.

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Higher education has a role as a producer of educated resources and ensures that every graduate has quality qualifications in accordance with KKNI standards in order to be able to compete in this era of globalization (RISET & TINGGI, 2020). The use of technology in teaching and learning activities is an effort to achieve learning objectives. Learning is the main key to education, because in essence learning can provide a permanent change in behavior in the form of knowledge, understanding, skills and new habits acquired by individuals through the learning process. Blended learning instructional implementation is not something easy, because lecturers must take the initiative to find innovative ways to meet learning needs and utilize technology in the learning process in order to create an innovative and effective learning environment (Oktaria & Budiningsih, 2018).

Research (Surjono, 2010) explains that the development of information technology, especially the internet in Indonesia, also makes educators have many choices in utilizing technology to support the learning process, one of which is E-learning. The use of E-learning in the learning process can make it easier for educators to provide material, assignments and quizzes for evaluation, as well as monitor and communicate actively with students via the web. So that the learning process using E-learning can be carried out by students and educators anytime and anywhere. Currently conventional learning activities have been influenced by information-communication technologies (ICT) which are important components of the educational process. Blended learning (BL) is a modern learning model that can maintain the essence of face-to-face conventional learning models and learning by utilizing technology in the form of e-learning or websites (Aleksić & Ivanović, 2013). iNACOL (International Association for K-12 Online Learning) also states that Blended learning can provide an integrated learning experience and is a powerful way to differentiate and personalize learning, and can also help teachers achieve maximum learning goals as planned without being limited. distance and time so that it will allow each student to achieve mastery of high education (Powell et al., n.d.).

According to Garrison (2004) in (Kaur, 2013) Blended learning is an effective way of learning with various delivery of learning that can be done in an interactive learning environment in online learning (e-learning) and face-to-face learning. Understanding the strengths and limitations of the two learning models is useful but it is not sufficient. Because the most important thing is how a teacher finds the right combination of these different models in effective instructional design (Hew & Cheung, 2015). The proper implementation of blended learning can make it easier for educators and students in the process of understanding several possible disciplines by optimizing teaching and learning. The integration of the Blended learning method is divided into face-to-face learning and distance learning by utilizing technology such as e-learning can be a wise solution to solving problems during the learning process. Several studies have found that incorporating blended learning into the teaching and learning process helps students advance to higher levels of knowledge acquisition and skill development (Kudryashova et al., 2016) (Medina, 2018).

Blended learning is a combination of online learning using technology such as e-learning with face-to-face learning in (conventional) classes (Zuvic-Butorac et al., 2019), (Graham et al., 2013), (Bath & Bourke, 2003). Technology integration brings changes to the education system and can improve digital skills of both students and teachers (Laurillard, 2014). Blended learning is expected to be a solution in overcoming learning problems. And from several existing studies it is stated that when the blended learning model is applied to the teaching and learning process it becomes effective with the transition of students to higher levels in acquiring knowledge and developing skills (Kudryashova et al., 2016). Although the Blended

learning model is flexible, there are many things that we must do so that learning becomes effective and useful. We must make learning more realistic in terms of the time, effort and resources required for development and implementation. The university must establish the policies, planning, resources, scheduling systems and support necessary to ensure that the implementation of Blended learning is successful. The resources needed are not limited solely to purchasing equipment and technology, but also refers to how to develop human resources in implementing blended learning.

Providing technology training in the form of e-learning and support for students as well as professional development is very important for academics who will use blended learning(Oktaria & Budiningsih, 2018), (Alsalhi et al., 2019). Development programs to form professional academics must provide training for academics on how to redesign appropriate learning programs, in order to find the most effective way to deliver their programs online and face-to-face, and also training in the use of e-learning technology effectively and appropriately (Oktaria & Budiningsih, 2018), (Poon, 2013), (Alipour, 2020). Blended learning is flexible with elements of student control over time, place, path and pace. However, blended learning is still controlled by the lecturer based on the learning design that has been predetermined from a distance (Patrick & Sturgis, 2015).

Blended learning can increase learners' access and flexibility, increase levels of active learning, and achieve better student experiences and outcomes. For educators who use BL can improve teaching and classroom management practices (Saliba et al., 2013). According to (Hew & Cheung, 2015) BL can improve student learning outcomes and to overcome learning problems. However, it must be remembered that a successful blended learning does not happen automatically, only because the online component (e-learning) is added to the face-to-face learning environment. Ideally, learning with an effective BL model should include learning activities asynchronously and synchronously. This is because it can allow students and lecturers to carry out more flexible learning activities that can be carried out anytime and anywhere regardless of the schedule or learning method that has been set. According to (Prohorets & Plekhanova, 2015) in his research, it was explained that the existence of this asynchronous and synchronous combination can increase student motivation and interest in learning and also have an impact on increasing learning outcomes.

The application of the appropriate BL model can make it easier for educators and students in the process of understanding several possible disciplines by optimizing teaching and learning. The integration of this model into face-to-face learning and distance learning by utilizing technology such as e-learning can be a wise solution to solving problems during the learning process. blended learning is very helpful in facilitating learning, so that this can be a solution for teachers who face limited learning time as well as students who cannot follow lessons in class (Wichadee, 2017). However, before learning begins to ensure that students have the skills and knowledge of online learning. Therefore, as an effort to support and assist education in higher education in developing and reconceptalizing Blended learning using student-centered moodle, it benefits them and their students.

Method

This research uses the Research and Development (R&D) methodology with the ADDIE model through the stages of analysis, design, develop, implement and evaluate. The research subjects were students at Bengkulu University. The data collection techniques used in this study were questionnaires and observation.

Results & Discussion

This development research produces a blended learning model module that can be used as a guide for lecturers and students in implementing blended learning and operating Moodle e-learning by optimizing the tools in Moodle according to their needs during the learning process. Pedagogically, blended learning is a sign of a substantial change in higher education which has a positive impact on integrated education because of its flexibility and self-configuring in the new normal (Dziuban et al., 2018). The analysis carried out includes three things, namely, analysis of learning problems, needs analysis, analysis of student characteristics; Design by designing instruments to be used in research, designing Blended learning models to be developed, designing online learning content (e-learning), e-learning guides for students and lecturers; Development, researchers develop and compile the components of the Blended learning model including syntax, social systems, reaction principles, support systems, instructional impacts and accompaniment impacts, as well as procedures for implementing the Blended learning model developed with the principles of cognitive and constructivist theories, The e-learning guide for lecturers and students will be used in the learning process, then internal validation is carried out by media, model and material experts before being tested in the field.

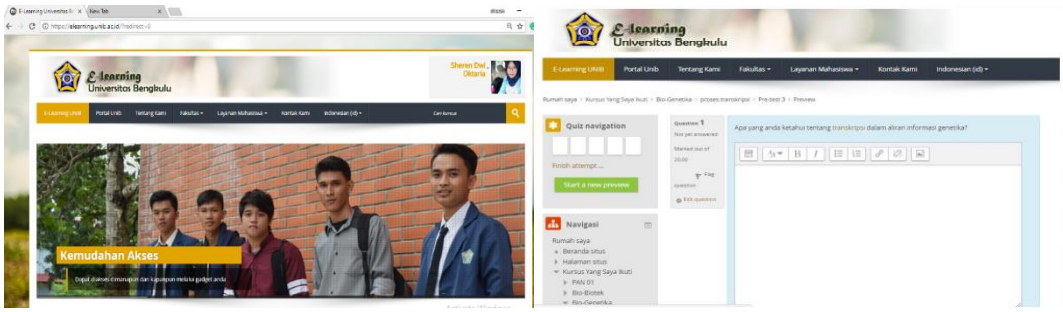

Figure 1. Display of Moodle E-learning at Bengkulu University

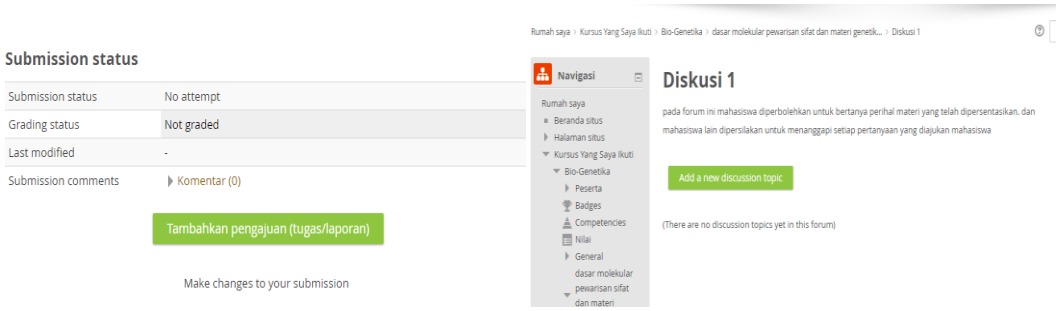

Figure 2. Discussion & Submission of assignment

Validation is to assess the product being developed and provide suggestions or comments on the model developed which will later be used as a basis for researchers to make improvements to the product being developed; Implementation, carried out by testing through learning activities using BL. The first activity begins with face-to-face learning in conventional classrooms. Furthermore, the lecturer provides initial information about the online learning process with e-learning. And students will be given a class password to enter the course. The scheme in implementing the BL model can be seen in the scheme below. The description of learning carried out in the BL model can be seen in the figure below:

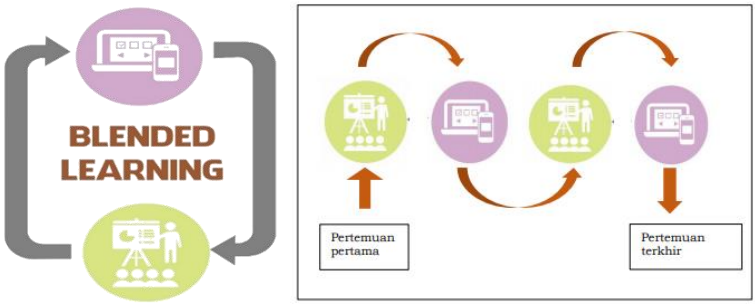

Figure 3. Blended Learning cycle

To assess the effectiveness of blended learning on aspects of student motivation after completing learning activities, researchers used a learning motivation questionnaire that was a modified version of the Science Motivation Questionnaire II (SMQ II) (Glynn et al., 2011); This research activity evaluates by providing formative and summative feedback to measure achievement of all learning objectives. The effectiveness and quality of the blended learning model in increasing learning motivation on the aspects of self-efficacy, self-determination aspects, grade motivation aspects, and career motivation aspects obtained an average of 3.368 which is in the very good category.

Tabel 1. Information icon:

Icon	information	Description
	Face-to-face Learning/ F2F	activity is a learning process that takes place in real time or synchronous in the classroom. Activities that occur at the F2F stage such as presentations and discussions
	*e-learning*	E-learning activities take place online and are not at one time or asynchronous. Because students can access online learning flexibly anytime and anywhere as long as the gadget or laptop is connected to the internet properly. Activities that occur at the e-learning stage such as Assignment, Page, URL etc.
	Colaboration	build collaboration between students and students with lecturers through communication tools built in the form of chatrooms, discussion forums, Collaboration activities can be carried out include online discussions, chat, and websites that serve to deepen the material.

Assessment of the quality of e-learning media based on 6 aspects such as diagram 1 is included in the very good category and improves student learning achievement after the implementation of blended learning. The integration of technology in the form of e-learning moodle for students makes learning more flexible and can be done anywhere. Face-to-face learning activities consist of presentations, discussions and questions and answers, while online learning activities with Moodle e-learning consist of online discussions through forums, online quizzes and independent study with learning materials and resources presented in Moodle-based e-learning.

The products produced at this development stage are in the form of a learning model with a combination of face-to-face learning and learning using e-learning, an e-learning operational guide for lecturers and students. The development of the blended learning model is based on the results of previous analyzes and designs. Besides being interesting, efficient, and meaningful, learning should provide good opportunities for exploring creativity and projects

individually or in groups (Wahyudi & Winanto, 2018). Blended learning is based on the Flipped Classroom model, with the idea that blended learning students include some element of control in the implementation of this model, allowing the learning to take place flexibly in selecting the location, time, place, and pace at which they follow and receive content and online learning instruction.

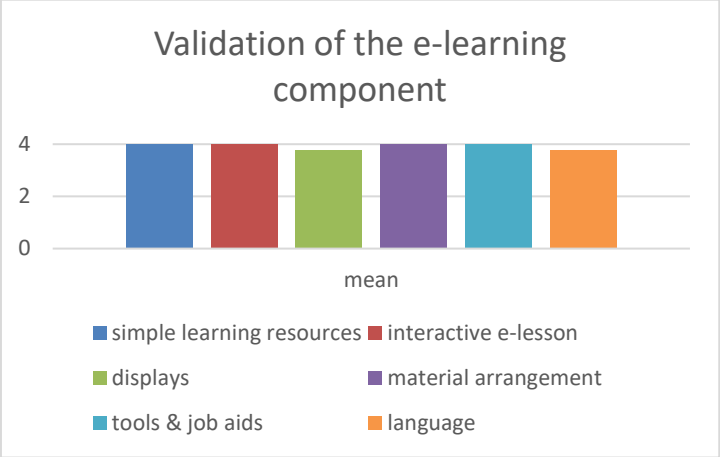

Diagram 1. Validation of the e-learning Component

The components that support the Blended learning model consist of syntax, the social system of reaction principles, support systems, learning impacts and accompanying impacts adapted to constructivist and cognitive concepts. Components of the learning model is paramount in developing a learning model that has been validated by two experts learning model with an average value of 3.25 and included into the category of Very Good. The quality of Moodle e-learning media was assessed by expert validators of e-learning media and the quality validation results of e-learning media were obtained from the aspects of simple learning resources, language, interactive e-lessons, displays, information tools and Job Aids on Moodle e-learning in Bengkulu University of 3.60 is included in the very good category.

The BL model developed is considered good and can be applied in learning. Face-to-face learning activities consist of presentations, discussions and questions and answers, while online learning activities with Moodle e-learning consist of online discussions through forums, online quizzes and independent study with learning materials and resources presented in Moodle-based e-learning. The effectiveness of blended learning on aspects of learning motivation is in line with several studies such as, (Hew & Cheung, 2015). According to (Almasaeid, 2014), (Harahap et al., 2019) , (Alsalhi et al., 2019) revealed that blended learning can improve student achievement and student skills. Choosing the right BL strategy can play an important role in changing the educational environment to be creative and interactive (Sukardjo et al., 2020). In addition, BL can also develop student skills, including: communication skills, receiving information, and interaction between students and teachers. Blended learning also places students into a major role during the learning process, because students have the freedom to choose how to study, when to study and where to study online. The application of the BL model makes students more ready to take part in classroom learning because students have the opportunity to understand the theory before entering the classroom by doing online learning (Ümit Yapici & Akbayin, 2012).

Lecturers can monitor the development of projects undertaken by students through learning applications, besides this application can be used by lecturers and students to discuss if there are problems encountered during learning activities. Besides that, it is able to

train students' ability to solve problems in each project (Saputra et al., 2019). (Bawaneh, 2011) in his research explained that the implementation into learning needs to be considered carefully and must be designed appropriately. Blended learning plays a very important role in creating a creative and interactive educational environment by involving students and lecturers during the learning process. This is because BL can develop student skills, including communication skills, receiving information, and interaction between students and lecturers through collaborative activities through face-to-face and online discussions. In addition the model BL also placed on student-centered learning, because students have the freedom to choose how to learn, learning time and a place to learn online. The application of the appropriate BL model can make it easier for educators and students in the process of understanding several possible disciplines by optimizing teaching and learning. The integration of the BL method is divided into face-to-face learning and distance learning by utilizing technology such as e-learning can be a wise solution to solve problems during the learning process.

In line with research from (Kudryashova et al., 2016) (Medina, 2018) states that if the model BL applied to the learning process of students becoming effective with the transition to a higher level in acquiring knowledge and developing skills. BL learning not only makes use of abundant and powerful online learning resources and convenient interactive Web functions, but also provides full play to the teacher's main role in guiding, inspiring and monitoring the learning process, so as to achieve the goal of fostering students' abilities in autonomous learning, inquiry learning and collaborative learning (Tong et al., 2020). However, at the same time, instructional content, processes, and policies must be designed according to needs so as to equip students with the knowledge, skills, and potential to be more critical, innovative, and competitive in the workforce of the future. The results of this study validate many of the previously recognized features of effective blended learning, but also highlight the importance of a learning-centered approach, which lies in a triad in which the perspectives of lecturers, institutions, and students. From issues of guidance and support mechanisms to interdisciplinary assessments and strategies, these results point to the need for an integrative approach that supports more effective BL outcomes. The success of blended learning using moodle is also inseparable from assistance from the developer to provide training to lecturers in developing the right content and strategies for implementing the Blended Learning model in the learning process. So that blended learning can be used as an appropriate alternative for the reconceptalization of learning at the University.

Conclusion

Based on the results of the development and assessment that has been carried out on this blended learning model, it has met the eligibility criteria and is effective. The blended learning model can be said to be of very good quality based on the validator's assessment of the model developed. The results of this study emphasize pedagogy in blended learning, focusing on what students and lecturers will do during learning that increases the access and flexibility of students, increases the level of active learning. This blended learning model can help teachers navigate the complexities of BL, such as the integration process and navigation of essential learning activities and seek to involve, prepare, and support learning that has integrated online learning and face-to-face learning activities. This BL Model can provide support and reconceptalization of the higher education curriculum.

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