The Asian Journal of Technology Management Vol. 10 No. 1 (2017): 1-9

The Development of Message-Design Model in Blended Learning

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Abstract. *The researcher found a problem in designing an instruction often ignore the message design because it is focused on syntax and learning systems, including the design of innovative learning such as e-learning, online learning, blended learning and mobile learning. Based on these problems, the researcher develops a model of design message in blended learning. The goal is to help the educators to facilitate learners to interpret and construct teaching materials. The development used ADDIE models. Qualitative and quantitative data were collected through observation, interviews, questionnaires, and tests in order to produce a model of message design. The validity of this products was tested by expert and the practicality and effectivity testing by the user in the course of Theory of Learning and instruction. The result of this development consists of (1) the book of model design messages in blended learning, and (2) the learning tool that consists of teaching materials, media presentations, e-learning, syllabus, SAP that is valid, practical and effective. The Book model can be used by designers of instruction, learning consultant, and lecturer/educator in helping learners to interpret and construct learning message so that they have an ability to generalize the learning and become independent learners.*

Keyword: *Blended learning, online learning, message design, learning theory, ADDIE model*

1. Introduction

Technological advances offer abundant learning resources to access easily, more flexible and in various way. The development of computer technology and internet affects the facility to learn, learning can be done anytime and anywhere. Long time ago, print out is done and distributed to the learners as learning materials. Today, the use of computer and internet are done easily to distribute learning materials as email, website, online learning system, etc. The future learning system demands the role of online learning system as what Cristenses (2011:99) predicts that 50% of school programs will use online system. It can be clearly seen that online learning grows steadily from time to time as in figure 1.

Figure 1 shows that the growth and the development of online learning in a place over a year. It can be clearly seen that in 2003, the percentage of online learning use at approximately 10% and then more sharply to 50% in 2014. It is right that there was a swift rise in the use online learning. State University of Padang is one of university in Indonesia which provides 24 hours service for internet access to support online learning, academic portal, e-learning, web-mail and campus web.

Cristenses (2011:99) assumes that 50% school programs will be delivered by using online system. The development of online learning offers wide variety on instructional media and allocated time and place more effective and more flexible. However, Bersin (2004) finds that online learning also has some weaknesses as there is no face-to-face meeting because there is no appropriate thing to replace the role of professional educator. Technology just plays role as tool to help learning process runs well. From these two different learning

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Received: August 9th, 2016; Revised: March 17th, 2017; Accepted: April 1st, 2017
Doi: http://dx.doi.org/10.12695/ajtm.2017.10.1.1
Print ISSN: 1978-6956; Online ISSN: 2089-791X.

methods, we know what called *Blended Learning* – the way e-learning is being combined with traditional classroom method (face-to-face learning). Blended learning is not just about combining learning, which can't escape in the application of blended learning is a message that is delivered so as not to happen overlap between face to face with online learning.

Adopted from http://www.knewton.com/blended-learning

Figure 1. The Development of Online Learning Over Time

Related to ideas above, message learning design must follow message design principles in order to make blended learning work well. Learning message design can produce constructivism learning through message design manipulated as Cooper (1993), Jonassesn (1990; 1991) and Kember and Murhpy (1990) say learners' new knowledge is constructed from the old knowledge with their authentic experience (Bishop, 2014:144). When message delivered effectively, learners can construct new knowledge. Next learning messages are designed and developed based on learning message principles as motivational principles, perception, psychomotor, learning concept, problems solving and attitude development. (Fleming and Levie, 1978; 1993). According to Wang and Shen (2011), mobile learning needs message design and it must be based on knowledge of society in mobile technology. Minjuan Wang and Ruimin Shen (2011) state that to make it more potential, pedagogy and learning message design are developed based on learning environment needs of learners. It means that the use of technology in learning process must meet with message and content design principles on learning media used.

2. Literature Study

Smaldino, Deborah and Russel (2012) call Blended Learning as hybrid learning – combining and mixing learning setting in order to meet with learners need. It is in line of what Graham (2005:5) states that blended learning is combination between face-to-face learning with the use of computer system to deliver learning materials in learning process. This definition is also the same with Watson (2008), blended learning is a learning activity combining online learning components with face-to-face learning. From three definitions, it can be concluded that blended learning is combination between digital or online media with face-to-face learning in delivering of content and instruction to meet learners' need.

It has been known that focus in designing learning system by using blended learning is on learning syntax, materials used, learning media and assessment system. But, some important things are ignored as message content in blended learning itself. It is in line what Morrison, Ross, and Kemp (2004) state that message design is important factor but is neglected component in blended learning as a

study which is conducted by Kurniawati (2012) entitle The Development of Blended Learning Model on Computer and Information Management Skills Grade XI at State Vocational School 2 Purwodadi. The developing blended learning model focuses on syllabus and lesson plan arrangement by giving attention on learning devices components, characteristic of blended learning model and evaluation of blended learning model application. The development conducted by Kurniawati is based on learning model components proposed by Joyce (2009) as syntax, social system, reaction principles and support systems. It means that the development of blended learning model focuses on the development of learning model components without considering instructional message design content for the learners.

Message design research is crucial to conduct in blended learning research. First, developing of blended learning model on Computer-Based Instructional Design at Educational Technology study program Universitas Negeri Padang (UNP) (Rahmi, 2013). The result of research focuses on instructional model components. Second, blended learning strategy formulation in curriculum implementation at Educational Technology UNP (Bentri, Zen, and Rahmi, 2015). The result of research formulates the total number of face-to-face meeting and online learning in blended learning implementation. The third research is the students' material absorption through blended learning curriculum implementation at Educational Technology UNP (Bentri and Rahmi, 2015). This research shows that it has significant effect on the implementation of blended learning however, no one of these researches talking about the message design in blended learning. Since the importance of message design in blended learning this research try to develop message design in blended learning in order to meet the principles of message design.

On the other hand, Tunder and Bahadir (2014) in their research conclude that reading the printed materials are more efficient rather than computer screen. Today, it is assumed that it is difficult to avoid technology development in learning process. Therefore, learning message has to be able to maintain learners' reading and learning motivation to answer the students' ability in reading and understanding learning message delivered. So, it is necessary to maximize messages and learning materials in order to meet between learning materials and learners' need to develop students' experience outside of school environment. Message design principles are essential to develop learning materials because it considers how to make learning message easier to understand by learners. Learning materials correlate with learners' motivation to learn so learners are hoped able to construct learning messages. Brady and Kennedy (2007:292) mentions there are four points helping in constructing learning messages; high-level thinking, depth of knowledge, dialog substances and relationship between real life situation with classroom materials.

3. Methodology

This research used ADDIE model since this model has complete process in developing educational product. The are five processes in developing product by using ADDIE model, namely analyze, design, develop, implementation and evaluation. This research used quantitative and qualitative data since in order to prove the result statistically it used quantitave data, meanwhile to elaborate the result it used qualitative data. The data are collected through observation, interview, questionnaire, and test in order to produce message design model and learning devices which are valid, practical and effective. The products (book model) and learning devices (teaching materials, presentation media, e-learning, syllabus and SAP (lesson plan)) are validated by seven experts consisting expert of learning communication, language, learning media, learning theory. Then Interclass Correlation is calculated in order to make the product more valid. After getting the validity of the product, it is implemented to Learning Theory subject at Educational Technology Program UNP.

In order to find out the practicality of teaching materials, presentation media, e-learning was assessed by the students on Educational Technology Program at the second semester by three steps: *One-to-One Trial, Small Group Trial dan Field Trial* (Branch, 2009:123). The respondent was chosen by purposive sampling. However, practicality test of syllabus and SAP (lesson plan) are testes by observation and lecturing subject team. Effectiveness test is done by seeing students' activity development in weekly assignment progress, last semester learning outcomes.

The learning outcomes are analyzed with T-Test by comparing different devices on classroom test outcomes.

4. Finding and Discussion

Book of learning message design model which has been validated in blended learning and learning devices are assessed from some components such as content feasibility, language and graphics. The results can be seen as following table:

Table 1.

The Result of Validation of Model Book and Learning Components

Types of products		Validation score	ICC	ICC per Rater
Model book		0,900	0,961	0,369
Learning components	Teaching materials	0,907	0,896	0,301
	Presentation media	0,930	0,920	0,433
	E-Learning	0,905	0,905	0,322
	Syllabus and SAP	0,920	0,885	0,278

It can be clearly seen that Tabel 1 shows all development products are valid with high deal score, but when it is used one rater has low ICC score. It means that this product can be implemented in blended learning on learning theory subject.

Next, validated learning devices are tested by practicality test by three steps: *One-to-One Trial* to 3 students, *Small Group Trial* to 7 students and *Field Trial* to 1 student. There are three assessments such as content, easy in the use of language, presentation of teaching material graphic, presentation media, e-learning. The result as follows:

Table 2.

Tabulation of Test Practical Learning Devices Summary

Group	The total of Respondent	Learning components	Average	ICC
One to one Trial	3	Teaching materials	0,9	0,842
		Presentation media	0,8	0,591
		E-Learning	0,8	0,860
Small Group Trial	7	Teaching materials	0,8	0,842
		Presentation media	0,8	0,856
		E-Learning	0,7	0,901
Field Group Trial	30	Teaching materials	0,8	0,773
		Presentation media	0,8	0,815
		E-Learning	0,8	0,783

Practical test of syllabus and SAP is conducted through observation team by subject lecturing team. Observers are team teaching and researcher. The result of observation indicate that the implementation of the syllabus and SAP is proper to use because all design can be implemented. Then effectiveness test is conducted through data

analysis of two classes using devices and without devices which are developed based on massage model design book. After the data is known normal and homogeneous, data analysis uses T test. The result of data analysis can be seen in Table 3.

Table 3.

Test Results T Rated Class A and B

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	8,718	,005	6,891	56	,000	30,13793	4,37348	21,37680	38,89906
Equal variances not assumed			6,891	43,352	,000	30,13793	4,37348	21,32004	38,95582

Based on the table 3, it can be seen that the significancy of test is 0,00. It means that learning device in blended learning that has been developed based on message design model is more effective than learning device in blended learning without using message-design model.

Based on a series of development activities carried out, it is found a message-design model in blended learning and learning components on teaching and learning theory course are valid practical and effective. Three measurement standards conducted as criteria for product development, according to Nieveen (1999:126-127) there are three criteria of product quality as validity, practicality and effectiveness.

The first one is valid. Valid book model is formulated based on message design principles, and valid learning components are developed based on book of message-design model. The another reason that make a model become valid is the developing of a book.

In this research, book model was developed based on the rational of the need of book model, the purpose and the benefit, the relevant of book content with the principles of design message, procedure of developing message design, language that is used and the visualization of book model. The validationis define based on the component that construct a product. For example, if a book model is developed based on the component of a model. It means that the book model is valid.

Next, learning devices in Instructional and Learning Theory subject are implemented for one semester. The result shows that component is practical. Practicality is influenced by principles of message design focusing to help learners' ability to acquire information or content (Bishop, 2014:376) becomes knowledge constructed rather than understanding so it can show positive behavior response. In this case, learning contents or instructional messages are a tool for teachers' and learners' personal development. Ausubel (1968) says there are four roles of educator as a). Managing learning situation, b). Selecting appropriate materials

for learners, c). Then, presenting materials (Slavin, 1994:230), d) avoiding memorizing and emphasizing on materials understanding (Slavin, 2006:190). Therefore, it is important to prove the paracticality of learning devices in order to prove the usable of this learning devices toward learning subject. The learning devices that are practice are important since it can help the learners how to learn and to develop personal ability, discovery learning, generative learning and independent learning.

It means that learning activity is done to give chance to learners knowing how to learn through small experiment which engages learners' participation actively (discovery learning). It is hoped that learners can find relationship between prior knowledge and what are learning (generative learning), so the learning outcome is independent learning. Learning activities provide an opportunity for learners to obtain meaning learning. As a result they can construct prior knowledge and experience. The learning activities that have been done should be done based on the principle of message design. As what Molende and Boling (2007) state that message design focuses on optimizing of learning communication system by finding the most effective way to help students construct knowledge.

While Mayer (2001) suggests that message design needs to fulfill the principle of coherence (association) and cohesion (relations) and considering material order, both horizontally and vertically. Material presentation vertically and horizontally according to Ornstein and Hunkins (2013: 156) that messages are presented take into account on scope, sequence, integration, articulation and continuity between the material balances. Thus, in developing learning materials, the lecturers need to consider all message design. As a result, message design can be interpreted by learners, not only as addition to knowledge, but also as tool to develop self-learners and assist learners to be deliver message to get constructed knowledge. The last one is effectivitas. The product is effective if the result that has been gotten is relevant with the objectives.

The purpose of this learning devices that has been developed based on instrictional message design model is facilitate the students to engage directly in learning activities. It can be seen from the students' activity in learning process. The result of the research shows that students' activity increase when blended learning is applied with learning components by following message design model. At the beginning, it is not visible as lecturers hope. It is assumed by the previous learning way. The progress of student activities for one semester can be seen in Figure 2.

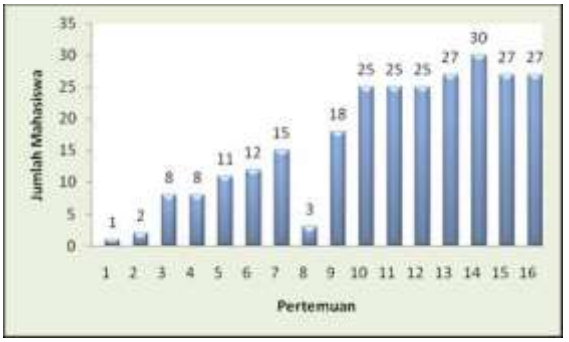

Figure 2. Students' Activity in One Semester

Figure 2 shows students' activity on Teaching and Learning Theory subject for one semester. It can be clearly seen that students' activity rises gradually. The students' activity decreased dramatically on meeting 8 because of flood disaster happening in Padang. The total of students who attended quite a lot, 26 out of 32 students. But based on lecturers' observation, students looked exhausted after evacuating belongings and clean up house. It does not change students' online learning activity. Learning activity runs well for the next meeting.

Learning activities that are involved the learners actively in blended learning environment are helps the students to understand and improve the understanding of learning material. This is evident on absorption material research by students through blended learning application in curriculum implementation at Educational Technology course in UNP (Bentri and Rahmi, 2015).

This study shows that there is huge effect on blended learning application, but certain material presentation is needed for blended learning materials. At campus, online learning or ICT-based learning is more popular and favorite one. According Patchana, Schunnb, Siegc and McLaughlinc (2015), in an article on their research state that there are three benefits of learning-based technology, namely (1) providing flexibility to students how they learn, (2) offering feedback directly to target, and (3) promoting students' participation in involvement with message or learning content. In this design, the most beneficial of using technology is to prepare students face-to-face meetings and continue face-to-face discussion to e-learning forum. Moreover, Owston, York and Murtha (2013) also state that benefits of blended learning not only for students but also for (1) an institution, providing efficient classroom, (2) faculty, increasing the flexibility of lecturers' teaching schedule, and (3) students are engaged to improve their academic achievement. Thus, implementation of blended learning is not only beneficial to learning improvement but also for wide scope.

According to Cavanagh (2011), blended learning provides flexibility and convenience of learning process, the result of the US Department of Education analysis, online learning program is better than face-to-face discussion and good in students' learning achievement. At the beginning, it is not visible as lecturers hope. It is assumed because of the previous learning way. Online learning and face-to-have discussion is hoped to be interesting for students as one way to avoid bored feeling in learning. Bored feeling disturbs learning process in the classroom. Lecturer can detect easily when students are bored on face-to-face discussion but it is difficult for online learning. Online learning is used when application which is used so difficult and students do not get reward of what they do. Because of that, researcher does as what suggested by Martines-Caro and Campuzano-Bolarin (2011) having continuation access to instructors or lecturer is considered as important factor in-maintaining and improving students' satisfaction on blended learning.

5. Conclusion

It can be concluded that learning components which is constructed based on message design model in blended learning helps students to interpret and construct learning message so they have ability to generalize learning and being independent learners. There are three criteria of developing message design model namely validity, practicaliti and effectivity. This model has been fulfill all of the criteria of developing message design model. Then, message design give contribution toward blended learning. In order to create a high innovative learning for all education level, as long as it has good message management, facility learning environment as a result the students can construct their knowledge and experience. Shortly, message design model can be used by learning designers, learning consultant, and lecturer or educator in order to develop students' potential.

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