

Applied ICT Model in Distance Learning for Collaborative Program in State University of Makassar

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Abstract— Applied Information and Communication Technology Model for Distance Learning in collaborative program in State University of Makassar is as diffusion and innovation lecture to address the problems of distance and time in lectures. This research aims to know the effectivity of model applied ICT-ODL based on the domain used in learning process. It also analyzes the needs, the input characteristics of students in distance learning in State University of Makassar. The subject of this study are the students of State University of Makassar from three study groups which are located outside of the city (Bone, Pare-pare and Samarinda). The result of this research shows that (1) the percentage of the availability of tools that are used as a whole: 87% laptop/computer, 27% internet connection, 90% of electrical power, and 37% telephone network, (2) transmission devices owned by lecturers: 92% modems, mobile phones 97%, (3) transmission devices owned by students: 83% modems, mobile phones 97% and (4) domain application used by students and lecturers: 87% e-mail, 62% Facebook, 12.5% Yahoo Messenger, and 23.3% blog. The results of this study indicate that the use of ICT in distance learning is still low.

Index Terms— ICT, distance learning, collaborative program

I. INTRODUCTION

Advances in science and technology is progressing very rapidly, especially in the field of electronics device technology, education, ICT and other disciplines. In the future, the applied ICT-ODL model will become the medium which able to accelerate the equitable learning outcomes and the improvement of literacy in the any other related field studies. The improvement of literacy can be done by utilizing all available ICT domain both online and offline.

Equal educational opportunities is a strategy in addressing the disparity of quality for all students. The government regulation number 20 on national educational system in 2003 states that in act 31 (1) the distance education can be held on all channels, levels, and types of education, (2) ODL provides educational services to groups of people who cannot enroll in person or regular, (3) ODL organized in various forms, modes and coverage which supported by facilities and service learning and assessment system which ensures the quality of graduates in accordance with standards national education.

The implementation of distance learning is strengthened by the government regulation number 12 in 2012 on Higher Education in act 31, paragraph 1 states that ODL is a learning

process which is performed remotely through the use of communication media. Strengthening the implementation is based on the ministry of education regulation number 24 in 2012 on the implementation of ODL in Higher Education article 2, paragraph 1 and 2 which states that: (1) ODL serves as a form of education for students who cannot enroll in face-to-face without compromising the quality of education, and (2) ODL aims to improve the expansion and equitable access to quality education and relevant based on the needs.

The legal basis that has been raised has shortcomings in its application on higher education due to still many institutions have not used, designed or developed the ICT-ODL learning model. Some of the influential factors are: (1) limited facilities and infrastructure, (2) limited teachers who are capable of using ICT nowadays (Darlan, 2014) and (3) the unavailability of ODL as a reference in the Higher Education in Indonesia. On the other hand, the domain of ICT are widely available which can facilitate students to learn. Therefore, applying ICT in the program of lectures and learning is highly needed since the domain of ICT does not require the use of sophisticated media and technology. What is needed is to maximize the ICT even in simple shapes such as correspondence study and pre-recorded media or other social media which widely accessible via the internet and mobile phones (Yaumi, 2014).

Nowadays, the development of ICT in Indonesia is progressing rapidly. The number of Facebook users was approximately 43.06 million people. Indonesia was the top two of Internet users around the world, while the use Twitter was approximately 19.5 million users (Antara News, 2012).

The number of internet users is not in line with the readiness of education, especially in the design of learning which is actually able to be developed by the teachers or lecturers as an effort to use ICT, especially internet and mobile phones in the implementation of learning. The widely used approach by teachers or lecturers is still focused on themselves. The results of preliminary research shows that there is a 78.67% teacher-centered approach, while the student-centered approach only 13:33% (Darlan 2015).

Based on the description, State University of Makassar designs and initiates the need for models of distance learning by using ICT domain that has been provided through the lesson plan on the collaboration program to a group of students outside the city of Makassar. With the use of ICT as a liaison media in classes that have been set, this program is feasible since the central campus of State University of Makassar has qualified lecturers in their fields and as the realization of strengthening the quality of teachers in study groups in district Bone, Pare-pare, and Samarinda.

The main problem of this research are focused on: (1) how to design ODL models by leveraging the ICT domain to support the implementation of equitable quality education and non-education competencies in collaboration program of

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UNM, (2) how does the model of applied ICTs are used in lecture programs, (3) how to model interaction in distance learning classes in each group cooperation learning in the classroom.

II. METHOD

This study is a survey study which aims to analyze the needs and the input characteristics of students in distance learning of collaboration program in State University of Makassar, also to identify the used of ICT domain. It captured the real condition of the education system in collaboration program of State University of Makassar.

The technique of collecting data was using interview and observation. The interview used interview guidance and recorded via audio tape and camcorders that begins with a request of agreements by the informants. The observation sheet was used to complete the data from interviews such as the collection of documentation on the implementation of the learning / lecture. Documentation techniques used to collect data about the reference, use of the domain of ICT activity and the interaction of each respondent.

The data was analyzed by (1) data reduction, (2) data presentation, and (3) data verification. Meanwhile, the category of the collected data was ranged from “very complete” to “incomplete”.

III. RESULT AND DISCUSSION

The result of this study focused on the availability of the facilities and infrastructure. Based on the analysis, the results are as follows:

Table 1. The availability of the facilities and infrastructure

No.	Aspect	Total (%)	Note
1.	Institution Facilities	96.25	Very complete Complete
	Computer/ Laptop	86.73	
	Internet Network		
	Phone network		
Availability of Electricity		53.20	Less complete Very complete
		92.45	
2.	Individual Facilities (Lecturer)	97.60	Very complete Complete Complete Complete Complete Less complete
	Computer/ Laptop	72.20	
	Internet Network	61.20	
	Phone network	72.00	
	Modem	87.65	
	Smartphone	22.35	
	Mobile phone		
3.	Individual Facilities (students)	98.25	Very complete Complete Less complete Very complete Very complete Incomplete
	Computer/ Laptop	83.00	
	Internet Network		
	Phone network	47.20	
	Modem	91.00	
Smartphone			

Mobile phone	98.20	
	1.80	

The result of data collection related to the integration of ICT and ODL based on the ICT domain are as follows:

Table 2. The used ICT domain

No.	ICT Domain	Frequency	Note
1.	Facebook	98.75	Very high
2.	E-mail	95.00	Very high
3.	Google	78.95	High
4.	BBM Group	35.20	Low
5.	Line	12.00	Low
6.	YouTube	76.00	High
7.	Skype	2.00	Very low
8.	Yahoo Messenger	78.30	High
9.	Blog	63.20	High
10.	E-Book	6.70	Very low
11.	E-Journal	-	Not used
12.	CD/DVD	-	Not used

The result of data collection related to the level of students' readiness of using ICT domain are as follows:

Table 3. Level of readiness in using ICT

No.	ICT Domain	Readiness	Note
1.	Introduction on symbols system	83%	Very good
2.	Transmission job characteristics	54%	Less
3.	Decision on failure	32.70%	Less
4.	Mastery of failure solutions	65%	Good
5.	The intensity of interaction with ICT	87.55%	Very good

The result of data collection related to the interaction between students and learning resources are as follows:

Table 4. Interaction between students and learning resources

No.	Interaction	Frequency	Note
1.	Access the internet through the searching machine for general websites	95.35%	Often
2.	Find the source of reading through the e-book or web-blog	75.20%	Always
3.	Search Indonesian scientific article	70.15%	Always
4.	Search Indonesian literature through online	54.10%	Sometimes
5.	Search the source of learning via YouTube	72.15%	Always
6.	Find the source of printed lecture material	47.50%	Sometimes
7.	Discover and use video or device to lecture material, maintenance and repair	50.12%	Sometimes

Based on Table 1, the discussion focused on the facilities and infrastructure that supports the implementation of ICT-based learning (ODL-ICT) obtained that facilities owned by institution seem that the readiness of the institution and the individual lecturers and students are very prepared to conduct the distance learning ICT-based program in collaboration class in Pare-pare, Bone, Samarinda. However, the electrical systems have not been designed to support the implementation of the program, because the electrical wiring system used is very mobile, which means that the installation of electrical systems used are temporary installations. Thus, it can be said that the availability of facilities and infrastructure at any location strongly supports the implementation of ODL-ICT program is being designed implementation.

Table 2 shows that the students participating in the collaboration program are already familiar with ICT domain that is used in the course or learning program. However, the most concerned result in this research was the supporting equipment of the implementation of ICT still needs assistance, guidance and individual practice. It depends on the needs of students so it will not takes time to adapt to every domain of ICT that will be used. Therefore, assistance is very necessary before this collaboration program is done, so that each activity or interaction with the media used will not hamper on any learning activities. Interaction lectures that can be applied are: (a) the practice and training, (b) tutorials, (c) simulation, (d) the invention, (e) problem solving (Heinich, 2006).

Model of Utilization of ICT-ODL, based on the direct observation of the implementation of the learning process in the existing location, the results of data collected through interviews and documentation show that models of the use of ICT in distance learning can be done by utilizing the ICT domain that has been provided in the current lecture material and the use of dynamic learning strategies. Utilization of ODL-ICT used in the cooperation program includes Facebook, blog, YouTube, CD / DVD learning.

Model of Interaction in ICT-ODL, which can be described from the results of the preliminary study are: (1) the interaction of lecturer and students, (2) student interaction with students, and (3) the interaction among lecturer, and students with the learning resources. The interaction between lecturer and students include face to face interaction and strengthened by online or a combination of the two directly. Face interaction takes place only at the beginning of the course and at the end of the course, after the meeting is done, then the next interaction only centered on ODL-ICT. This interaction is done in the form of team teaching between the local lecturer and the lecturer at the central campus of State University of Makassar. Both lecturer jointly entered at the first meeting to discuss the schedule, duties and implementation techniques lectures totaling 16 sessions, the meeting is also discussed about the implementation online networks in the lecture or a combination of both.

Model of interaction between lecturer and students is performed using two models, asynchronous and synchronous model. Asynchronous model interaction is done online using the blog, Facebook and other internet sites that can be accessed anytime and anywhere. One of the asynchronous interaction is accessing the course material and seek the required references. Synchronous model is a form of

interaction that are made directly (live) by using media such as video calls in Facebook, Skype, Yahoo Messenger, etc. This interaction model is to connect four locations lecture group. These results provide information that that the ICT domain that is used cannot be used optimally due to the speed limitations of the available networks and also the limited carrying capacity utilization of domain and symbols of students' knowledge on the network system.

Interaction among students in collaboration program of State University of Makassar is a sharing opinions on the collaborative group on the use of ICT. Brainstorming is used as a medium of discussion about the lecture material by utilizing ICT channel. This form of interaction models which students are in a different location connected through e-mail, mailing lists, discussion board in Facebook or blog discussions on the web. These activities run smoothly since it is already facilitated with computer/ laptop, internet connection, and models which can be used together. The use of Facebook also supports these activities through the e-mail mailing list because it can be accessed through mobile phone

Interaction between lecturers, students and learning resources, is an activity to support the implementation of the lecture in order to obtain the quality of learning outcomes. Lecturer provide online sites either designed or are already available. The use of learning resources such as e-books, online journals and other products can be obtained through the web blog, e-book to enrich the material contained on the media. Students can also search for conventional learning resources covering all learning resources derived from the library, such as: books, articles, videos, etc. that are considered important. Thus, the model interaction provides pleasant learning environment for the students to keep learning anytime and anywhere. The level of student interaction with learning resources online that are in the category of very always access the Internet via google for public sites and focus more on the use of online learning resources from the traditional learning resources in ICT-ODL class UNM cooperation.

CONCLUSION

Based on the findings and descriptions of data about the interaction model of ICT-ODL at UNM student collaboration program, can put forward some conclusions on the outcome as follows:

1. The facilities and infrastructure support the implementation of ODL-ICT. It provides sufficient technology to support the instructional program. Network provided by the recipient institutions of learning program supports the ongoing process of lecturing and supervising.
2. Model of utilization of ICT with appropriate form of presentation using internet domain include: e-mail, Facebook, searching machine, Yahoo Messenger, and Skype on the lecture.
3. The interaction model used consisted of:
 - (a) The interaction between of lecturer and students is a form of interaction that is predominantly used, particularly when discussing the contract lecture and presentation as well as the structured task. Likewise, the presentation of assignments, midterms and final exams, although already have forms of online interaction, face to face learning is still very

necessary, especially for teaching materials that have subjects fill procedure.

- (b) The interaction between students through ICT-ODL is very big seen from the results on the interaction of solving the problem. Although it is still limited to solving problems in the use of ICT systems domain symbols, as well as building sharing opinion in practical problem solving.
- (c) The relationship between lecturers and students and learning resources, with respect to the ability to access learning resources that have been designed to provide reinforcement for the better way of students to use ICT-ODL to achieve equality of access and quality of education in Indonesia.

<http://unesdoc.unesco.org/images/0012/001295/129538e.pdf>.

- [15] W, Dick., L, Carey., & J. O. Carey. Systematic Design of Instructional (7th Ed). New York: Longman, 2009.

REFERENCES

- [1] Antara News. (2012, June). Pengguna Facebook di Indonesia Tertinggi Ketiga Dunia, [Online]. Available: <http://www.antarane.ws.com/berita/317451/pengguna-facebook-di-indonesia-tertinggi-ketiga-dunia> (retrieved on 25 Februari, 2015).
- [2] B. E. Perron., H. O. Taylor., J. E. Glass., & J. Margerum-Leys. (2011, June). Information and communication technologies in social work. *Advances social work*. [Online]. 11(2). pp. 67-81. Available: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3117433>.
- [3] B. S. Oetomo. E-education: Konsep, Teknologi dan Aplikasi Internet Pendidikan. Yogyakarta, Andi, 2007.
- [4] B. Warsita. Teknologi Pembelajaran: Landasan dan Aplikasinya. Jakarta, Rineka Cipta, 2008.
- [5] D. Sidik. Integrasi Teknologi Informasi dan Komunikasi dalam Pembelajaran Vokasi pada Prodi Pendidikan Teknik Elektronika Makassar: Laporan PNBPN, 2015.
- [6] D. Sidik. Desain Model Pembelajaran Elektronika Analog Presented in the Seminar of National Qualification Framework-based Lesson Plan for Education Engineering Electronic Study Program on March 16, 2014.
- [7] J. T. Holden & P.J.-L. Westfall. *Instructional Media Selection for Distance Learning: A Learning Environment Approach*. *Distance Learning*, 3(2). pp. 1-11.
- [8] O. Lee & Y. Im "The emergence of the cyber-university and blended learning in Korea," in *Handbook of Blended Learning: Global Perspectives, Local Designs*, C. J. Bonk and C. R. Graham, Ed. San Francisco, CA: Pfeiffer Publishing, 2006, pp. 281–295.
- [9] M. D. Roblyer. *Integrating Education Technology into Teaching* (3rd Ed). Upper Saddle River, NJ: Pearson Education, 2004.
- [10] M. Simonson., S. Smaldino., M. Albright., & S. Zvacek. *Teaching and Learning at A Distance*. *Foundation of Distance Education* (5th Ed). Boston: Pearson, 2012.
- [11] M. Yaumi. *Model Pengembangan Media dan Teknologi Pembelajaran: Suatu Pengantar*. Makassar, Alauddin University Press, 2015.
- [12] M. Yaumi. (2007, December). The implementation of distance learning in Indonesia higher education. *Lentera Pendidikan*. [Online]. 10(2). pp. 196-215. Available: http://www.academia.edu/download/37846637/The_Implementation_of_Distance_Learning.pdf.
- [13] R. Heinich. *Instructional Media and Technologies for Learning*. Merril: University of California, 2002.
- [14] UNESCO. *Information and Communication Technology in Education: A Curriculum for Schools and Programme of Teacher Development* (Eds J. Anderson and T. van Weert). 2002, UNESCO, Paris. [Online]. Available: