

Lecturer's Attitude towards Advance Technology and Its Impact to the Learning Process: Case study in Tangerang City Campuses

Harisa Mardiana

Study Program Information Technology
Faculty of Science and Technology, Universitas Buddhi Dharma, Tangerang
Email: harisa.mardiana@buddhidharma.ac.id

(Received: January-2018; Reviewed: February-2018; Accepted: February-2018; Published: Maret-2018)



©2018 –EST Graduate Program Universitas Negeri Makassar. This is an article with open access under license CC BY-NC-4.0 (<https://creativecommons.org/licenses/by-nc/4.0/>).

ABSTRACT

This research aimed to determine the qualifications of lecturers in the field of social science depended on the use of advance technology, especially the power points, the Internet, and social media site. The problem that some of the lecturers preferred to use the traditional way of teaching, such as whiteboard and marker, lectures. This study research was to observe the categories of lecturers' knowledge, ages and gender in using technology in the classroom. Also we sought lecturers' difficulty in using technology to conduct the teaching and learning process in the classroom. The research design in this study was a quantitative method, with giving questionnaires to 107 lecturers in Tangerang City campuses. Data collection technique was taken by conducting observation, questionnaires and interview and data analysis. The result of this study research showed that there are 5 categories of lecturers' attitudes towards advance technology based on their knowledge, ages and gender. And the purpose of the study research is to give an opportunity to increase lecturers' qualifications for 21st century learning process and to leverage advance technology in campuses which it is to deliver contents and to engage students and lecturers learning process in ways not previously possible.

Keywords: *quality of lecturers; advanced technology; lecturers' categories; teaching and learning process*

INTRODUCTION

As technology plays important role in education in which it can develop characters, quality of life, sharpen the people knowledge, all educators, students have to know the technology to support their learning process. The traditional face to face lecture included a number of diagrams on overhead transparencies that needed quite a bit of explanation by the lecturer has been abandoned as the need for independent and creative teaching and mastery in teaching

method; techniques and knowledge have become more demanding for lecturers. These two dimensional line drawings limited because they represented three dimensional objects in the real world that moved and changed (Atkinson & Wilmot, 2001).

However, the problems faced by Indonesian in the field of education today is the unequal distribution of educational opportunities for all people, the difference between education in the village with the city, many people are illiterate, low productivity of its citizens and the

urgent need for education itself (Graham, 2016). The point to lecturers' continuing difficulties integrating technology into classroom learning is the lecturers have minimum knowledge and skills to use advanced technology.

In the previous research by Onasanya, et al, (2010) showed that gender and academic qualifications of lecturers do not affects lecturers' attitudes towards the use of Information Communication Technology or ICT facilities and equipment, and the younger lecturers are more amiable to new challenges than the old ones. Another research by Olafare, et al, (2017) indicated that lecturer's attitude was a key factor in fostering ICT adoption in education in which the ICT will go a long way to facilitate the use of available ICT. Moreover, research from Kpolovie, et al (2016) found that both male and female hold positive attitudes toward ICT with males having stronger positive attitudes than female colleagues and regarding gender, males have more positive attitudes toward ICT.

Based on the problem above and the previous research, this study would research the lecturers' attitudes towards the technology in the classroom base on the knowledge of technology, ages and gender will give the impact of learning process. As far as it concerned, Social Science lecturers in Universitas Buddhi Dharma are not from the permanent lecturers to teach in the class, so the campus has to hire part-time lecturers who have "limited" amount of technology knowledge to teach. On the other side, the qualified lecturers have already taught or joined in good schools or campuses. Observing the gap, various efforts have to be sought and carried out, so the quality of the learning process can be maintained and even improved. One solution is the use of problem-solving learning multimedia learning which has a positive impact and extraordinary benefit in facilitating student learning and also the research study will divide the lecturers into categories of lecturers' knowledge regarding to the use of technology in the classroom (Region, 2009).

And the key finding for this study research is: (1) How many categories of lecturers' knowledge in using technology do in Tangerang City have based on cognitive, age and gender?, (2) Why have almost social science lecturers had difficulty in using technology in the classroom based on cognitive, age and

gender? (3) What should it be done by the campus in addressing the problem?

To master the use of technology for learning needs, lecturers' competent must be developed and improved through collaborative activities with colleagues, cooperation with out of campus and others (Kneale, 2009). The lecturers do not have to depend on textbook all the time. Also, in using technology is more adaptable for lecturers and students which it is used more to expand communication and increase access to resources. The newest technologies such as e-mail and the Internet tend to push lecturers toward fundamentally different ways of teaching (Chapman, Garret, & Mahlck, 2004). Moreover, there is a gap between the current situation and the expectation for learning process to support student learning when the lecturer has a lack of specific knowledge about technology and combine it with the existing pedagogical content knowledge (Hutchison & Reinking, 2011). The problem arises because the gap between the current situation and the expectations is wide. With the rapid information is expected to be easy for lecturers to find the sources of social science subject.

The importance key of lecturer' knowledge highlight to assimilating academic knowledge, incorporate of student lecturer knowledge which derived from experiential and practical experience in the classroom, and lecturer preparation is related to differences in students achievement (Guerriero, 2013). A component of lecturer knowledge is lecturer professionalism, and professional competence involves skills, attitudes and motivational variables. Unfortunately, lecturers will never have "complete" knowledge about the tools available, as they are always in a state of flux (Muller et al., 2008). Mishra & Koehler (2016) argued that a conceptually based theoretical framework about the relationship between technology and teaching can transform the conceptualization and the practice of teacher education, teacher training, and teachers' professional development. Based on the researchers' opinion, this research study identified that the problems with current situation implied of developing a framework which it has beyond a coherent way of thinking about technology integration. The relationship between technology and teaching can transform the conceptualization and the practice of teacher education, teacher training and teachers'

professional development (Mishra & Koehler, 2006).

In this study research, the author includes the age of lecturers who contributes to the use of technology. Nandika., et al (2007) argued that the older lecturers are struggling to find the time to keep up with new teaching methods and practical acquisition and the use of the new teaching technologies. William., et al., (2000) as studied that the relationship between age and attitude towards ICT of teaching showed significant positive attitudinal difference towards ICT as a matter of age. As Purcell, K., et al (2013) found that the younger teachers as specifically in teachers under 35 are very confident to use new digital technologies (64 %) than teachers in age 55 or older (44%). But the lecturers who are 56 years old have a positive attitude towards the use of the Internet in their own teaching. The older lecturers may have difficulty in using technology especially in the age of 57 or older. But step by step, the lectures should learn more about using technology in the classroom.

Also, this study research discusses about gender differences which have been studied in diverse range of disciplines in implementing extended technology acceptance. Goswami & Dutta (2016) revealed that gender influence the causal relationship i.e., the path from perceived usefulness to attitude is much stronger for males as compared to females and the result is same for the path from ease of use to perceived usefulness. As the survey of 67 female and 89 male employees from six different international companies in Taiwan, Ong and Lai (2006) found that females are being more challenged by computer illiteracy attach. And for female, it is more importance to the ease of use of e-learning tools as compared to men while males give more emphasis on perceived usefulness in determining behavioral intention towards e-learning adoption. Chen (1986) examined gender differences in computer attitudes and experience of adolescents. This study research found that males were more interested in and more confident with computers than females. It also suggested a differential in the use of computers, finding that males had greater exposure to computers both in formal instructional settings and informal settings.

METHOD

This research purpose is to conduct the quantitative research which it is to determine the categories of lecturers' attitudes towards advance technology based on knowledge, age and gender and to seek whether it has an impact to the learning process.

The subject sampling selection was applied to 175 lecturers from Tangerang City campuses and 107 responses were received. Data collection technique for quantitative research was collected by giving the questionnaires, interviews, data analysis to investigate. Data collection technique regarding to qualitative was collected from lecturers to be interviewed with last for 2-3 hours in October and November 2016. Moreover, series of works had been undertaken to collect data for the research. Related literature was reviewed and questionnaire was developed by the researcher. The study research was also followed by semi-structured interviews conducted with the researcher (Jamshed, 2014).

Research Material. A creation and deployment of the research is mainly to get the interaction between students and lecturers in the class and the lecturers used computers or laptops, power points, Internets, and other social media. There are 18 questions developed and had cross-checked to measure respondents' usage of technology in the classroom. Prior to the study, an extensive exploratory phase was conducted to issue the importance to users and nonusers of technology in the classroom. The questionnaires are divided into 3 categories: (1) To seek lecturers' categories of knowledge in using technology in the classroom based on cognitive, age and gender (2) To seek the social science lecturers who had difficulty in using technology in the classroom based on cognitive, age and gender, (3) To seek the problem-solving for campus in addressing the problem

To calculate the variables or the items of questions on questionnaires, the research study used Lickert scale to conduct 3 different types of questions about lecturers' difficulty in using technology in the classroom. The first type H1 is about the lecturers' category in using technology in the classroom. The second type H2 is about lecturers' difficulty in using technology in the classroom. The third type H3 is to find the problem-solving for campus in

addressing the problem. This study has conducted a scale of pre-tested to examine the volunteer subjects to deploy the research. This pre-tested was to examine the difficulties in comprehending the items by using questionnaires as a testing instrument. The questionnaire was developed based on a survey of literatures and feedback of interviewers. Many questionnaires were revised by researchers in implementing this experience. We use Likert scale questions from [1] strongly disagree, [2] disagree, [3] agree, [4] strongly agree. Respondents for this study research are 61% (n=107) from Tangerang City campuses and all of the respondents are temporary social science lecturers (male and female) from 19 institutions in Tangerang City. Group ages between 26- 70 years old. The second type was the interview to 8 lecturers regarding to the lecturers' attitude towards advanced technology in the classroom

Tabel 1 Demographic Profile of Lecturers' Attitude of the respondents. (N=107)

No	Age Group	Total		Gender		Level of Education			
				M	F	1	2	3	4
1	26-33	7	6.5%	5	2	-	7	-	-
2	34-40	22	20.6%	1	12	3	1	-	-
3	41-48	37	34.6%	2	13	2	3	-	-
4	49-56	31	28.9%	1	19	1	3	-	-
5	57-65	10	9.3%	4	6	8	2	-	-
		107	99.9%	5	52	1	9	-	-
				5		4	3		

Description: Level of Education for each respondent. 1. Bachelor Degree; 2. Master Degree; 3 Doctoral Degree; 4. Professor.

No substantial problems in working or mechanics were recorded. Lectures have shown in age group of using ICT in the classroom. The study research has hypothesis:

1. There are 5 categories of lecturers' knowledge in use technology in the

classroom based on cognitive, age and gender.

2. Finding lecturers' difficulty to use technology in the classroom based on cognitive, age and gender.
3. There is a solving-problem from campus to address the problems.

RESULTS AND DISCUSSION

Result

Lecturers' technology backgrounds were analyzed through a set of questions. It was found in the frequency and percent values that the lecturers' knowledge of technologies are divided into categories. For having indicated the value of research, we use SPSS version 19.

Table 2. Descriptive statistics, reliabilities among variable (N = 107)

Variables	Means	SD	H1	H2	H3
H1	11.03	2.651	.667		
H2	11.92	3.382		.680	
H3	13.89	3.157			.700

The reliabilities of variables from questionnaires that the respondents filled out (N =107) found that the highest reliability is H 2 $\alpha = .701$. It is about lecturers' problem in using technology in the classroom or ICT. The second highest is H3, it is about the campus administration by having lecturers who has difficulty, and the third highest is H 4, it is about campus solution to solve this problem. The last is H1, it is about decreasing learning process in the class because the lecturers ignored in using technology in the classroom.

The second step in the analysis was to assess the correlation between variables. Table 3 is shown the correlation in each category.

Table 3. Descriptive statistics correlation between variables. (N=107).

Variables	Means	SD	H1	H2	H3
H1	13.69	3.014	.582*		
H2	19.60	4.485	-.202*	.540*	
H3	8.74	2.169	.513**	-.177	.582**

**Correlation is significant at .005 level (2-tailed)

*Correlation is significant at the 0.01 level (2-tailed)

In correlation analysis was to assess the correlations between variables. Table 2 is shown that H1 and H3 ($r=.582$, $p<0.01$) has the highest

correlation to dependent variable with means H1 13.69 and SD 3.014 and H3 means 8.74 and SD 2.169. H2 is the second highest ($r=.540$, $p<0.01$) with means 10.60 and SD 4.485. The correlation between H1 and H2 is ($r= -.202$, $p<0.01$). The correlation is negative and it means that the questionnaires H1 is about lecturers' difficulty in using technology and questionnaires H2 is about the campus solution of the problem. Correlation of H1 and H3 are strong enough it is ($r=.513$, $P<0.01$) it means that the correlation

about lecturers' difficulty and the campus solution has strong correlation. Correlation H2 and H3 is ($r=-.177$, $p<0.01$) negative, it means the questionnaires between H1 and H2 are different.

The next step is to measure data of technology using, lecturers' age and gender. The reason to measure the use of technology, age and gender is to present quantities descriptions in a manageable form of the technology usage, age and gender.

Table 4. Descriptive statistics Descriptive of Technology, Age and Gender of users between variables (N=107)

	N	Mean	Std. Dev.
	Statistic	Statistic	Std. Error
Tech.	107	44.92	.550
Age	107	45.36	.884
Gender	107	1.49	.049
Valid	107		

The descriptive of technology, age and gender are shown on the table 3. It is indicated that Technology (N) = 107 and mean 44.92 and SD 5.690 and std. Error .550. It means that the average lecturers use technology is 44.92, it is quite good that most of the lecturers use the technology in the classroom. Means or the average age is 45.36 and SD 9.145, std. error .880. It means that the age of 45 is the best age to teach in the classroom by using technology. The lesson runs quite well and the students get good attention to the lesson. To measure gender, this research indicates that gender (N) = 107 and mean 1.49, std error is 0.49 and SD .502. It means that almost male and female lecturers are using technology in the classroom.

The research study shows the frequencies of each category, begins with technology usage, age and gender. The purposes to show the frequencies of each category are to explain in detail about the lecturers are using technology in the classroom.

Table 5. Descriptive statistics Frequencies of Technology Usage (N=107)

Using Technology									
Excellent		Best		Good		Fair		Bad	
Fr	%	Fr	%	Fr	%	Fr	%	Fr	%
3	2.8	55	51.4	25	23.3	21	19.5	3	2.7
	%		%		%		%		%

From the description above, it is shown that the descriptive statistic frequency of Technology user is for all ages and genders. The research study is indicated that almost all of the lecturers use technology in the classroom such as powerpoint documents, pdf, excel and internet. Only 2 lecturers didn't use the technology, they are at the age of 57-65. The first category of using technology is at the age of 26-33 in category excellent. They are 3 (2.8%) lecturer and they are still young lecturers and they are using technology every time they teach and they are doing best. Both lecturers and students use technology in the classroom such as power points for presentation; internet is used to find the resources and to get some pictures or video, etc. The second is at the age of 41-48 in category best. They are 55 (51.4%) and the lecturers are expert in using technology in the classroom and they know what to do in the class and they are the best in teaching students. The third is in category good, and at the age of 49-56, they are 25 (23.3%) lecturers. These lecturers are very expert in using technology in the classroom, but sometimes they are tired in using technology, it is because of the age. The voice is a strong, but the energy is low. They fourth category fair and they are at the age of 34-40, they are 21 (19.5%). Actually, the lecturers are still trying to find another jobs,

because they think being a lecturers are not their job. But the use of technology is good, only the way they teach is not as good as the campus require teaching. The last or the fifth is at the age of 57-65 in category bad, they are 3 (2.7%) lecturers. These lecturers are old; some of them have already retired. But they are still willing to teach, and the campus still respects them. The way they teach is in old fashion way of teaching, use book, white board and markers. They have difficulty in using technology such as power point, pdf, video, images or using the Internet. The ways to find the resources are from the books which sometimes have been old books. It is figure 2 shows about the lecturers use the technology by the age. Next is to find out about the age of lecturers in using technology. Table 5 is shown the descriptive statistic frequencies of age in using technology.

Table 6. Descriptive statistic Frequencies of age in using technology.

Age									
26-33		34-40		41-48		49-56		57-65	
F	%	F	%	F	%t	F	%	F	%t
7	6.4	3	28	3	30.8	2	19.4	1	14.8
	%	0	%	3	%	1	%	6	%

F: Frequency %: Percent

From table 6, descriptive statistic frequencies of age in using technology are shown that the first is the age of 41-48, 33 (30.8%) lecturers in using technology, the lecturers understand the importance of using technology in the classroom. The second use of technology is at the age of 34-40 (28%), it is said that the lecturers sometimes do not use the technology in the classroom; they are more likely to have discourse. Actually, they have a bit confused to use the technology either to use the Internet, pdf, powerpoint or image. So, they prefer to have discourse. The third age of using technology is 49-56; they are 21 (19.4%) lecturers. They are very expert in using technology in the classroom and they know what to do, but sometimes they have tired in teaching in the classroom. The fourth is at the age of 57-65, they are 16 (14.8%) lecturers. They have difficulty in using technology because usually, they use book, whiteboard and marker and some of them have no experience in using technology in the classroom. The fifth or the last is at the age of 26-33, they are 7 (6.4%). The research study has

found out that in reality, social science people are not interested in being a lecturer; they prefer to work as civil servant.

Next step is to show the descriptive statistic crosstabs of gender in using technology.

Table 7. Descriptive statistic crosstabs of gender in using technology

Gender										
Excellent (54-59)		Best (48-53)		Good (42-47)		Fair (37-41)		Bad (32-36)		
F	%	F	%	F	%t	F	%	F	%	
M	4	3.73	14	13.08	23	21.49	11	10.28	3	2.8
F	3	2.80	17	15.88	17	15.88	11	10.28	4	3.73
T	7	6.53	31	29.68	40	37.37	22	20.56	7	6.53

F: Frequency; M: Male T: Total
%: Percent F: Female

From table 7 shows that the first gender of using technology is in category good, it is 40 male and female (37.37%). The second use of technology is in category best, it is 31 male and female (29.68%). These lecturers are very good in using technology. The third gender of using technology is in category fair, it is 22 male and female lecturers, they are 11 male (10.28%) and 11 female (10.28%). These lecturers prefer to use discourse such as book, whiteboard and markers in the class rather than use technology. The fourth gender of using technology is in category excellent and bad. Both of them have the same numbers of male or female. The category excellent has 7 male and female (6.53%) in which they are 4 male (3.73%) and 3 female (2.80%); these lecturers are very competent in using technology and the lecturers are usually to ask for. Another one is in category bad has 7 male and female (6.53%) in which they are 3 male (2.8%) and 4 female (3.73%), these lecturers are usually do not know how to use the technology in the class, the reasons are they are old enough and get lazy to have a training or they do not want to have a training because of the budget.

The full participation of lecturers in adopting new technologies to enhance education requires a commitment to ongoing professional development of lecturers (de Moura Castro, 2004). In general, campus has already facilitated the need of technology and training and the government has obliged to increase the facilities and training to increase the lecturers' knowledge (Rules and Regulation, 2009). In the recent years, the budget from the government is

decreased, and campus should provide the technology and training to the lecturers. As the use of technologies the lecturers should move from teachers centered approach to the students' center, because media plays a big role to engage of lecturers and students in learning process as a set of goal in learning systems (Isman, 2004). The most lecturers in using technology is 55 lecturers (51.4%) from 107 lecturers, they are in best category because lecturers have appropriate way to use powerpoint documents, excel, the Internet or video. The other words technology is used as an appropriate vehicle to teach in the classroom (Motamedi, 2012). Moreover, the students will develop and increase the integration of existing models of learning, gaining understanding of the regulation of constructive learning process (Vermunt, 1998). In the interview to lecturers, as e-readers, they are very confidence to use new technologies which it is reflected to their gadget that it has been packed in mobile revolution. By having taught in the classroom, they are expert to find the resources and information from the internet. The greater availability of technology in the classroom opens new opportunities for cross-national sharing of instructional resource material, curricula, lesson plans, and teacher training (Mählck & Chapman, 2004). The positive of technology in campus will only be fully appreciated if implemented in a way that minimizes the negative effects. What is now known about learning provides important guidelines for uses technology that can help students and lecturers develop the competencies needed for the twenty-first century (Bransford, Brown, & Cocking, 2000).

The second most user of technology is in category good. 25 lecturers (23.3%) are using technology. As the technology is the most powerful tools in teaching, the lecturers expressed some concerns about what they saw as students' overreliance on search engines to find information and complete project of the class. As the interview took place and asked about know-how to use the new technologies, between lecturers and students, only half of social science lecturers (N=107) know more than the students. Overall, as interview with the lecturers and they said that while these lecturers are concerned about how to use the internet in general and also search engines in particular to

find information, they are confident in their own ability to use these tools effectively.

The third most user of technology is in category of fair. They are 21 lecturers (19.5%). As the interview was done to all lecturers, the research study found out that these lecturers are uncomfortable in using technology because they need more training about technology in the classroom. However, most lecturers are willing to develop their use of technology which it often has the problem in the classroom as they discovered that they failed in setting up the technology, they only focus on technologies rather than pedagogical learning process (Beckman & Barry, 2007). Many lecturers in this category face their day to day implementation of technology is not real benefit. Another thing is the information technology infrastructure is very small; the connectivity to make the technology work well seems to be less valued as it lacks the same collateral value and without the sufficient connectivity, the lecturers are set to fail.

The fourth most user of technology is in category excellent. They are only 3 lecturers (2.8%). These lecturers know what to do in the classroom. The learning process is running smoothly. The lecturers are knowledgeable and have deep understanding with full of knowledge and it is integrated in their skills into value of using technology. The lecturers are an expert to use technology in the classroom. As the interview to the lecturers, they know what to do and to set up the technology; also, they are the persons that others lecturers ask for help, especially in setting up the technology. For these lecturers, teaching with technology can deepen student learning by supporting instructional objectives, and to select the best tech tools while not losing sight of goals for students learning. They can integrate the tools which can be challenged to their experience with the creativity and constructive way in using technology. The technology plays more of a facilitator role rather than a more directive or authoritative, in which the teaching method requires lecturers that learning happens without hands-on direction (Associates, 2003).

The fifth of using technology is in category bad. Only 3 lecturers (2.7%) are using technology in the classroom. The interview to the lecturers in this category is that they have lacked of technology, the lecturers are unable to

use technology, because the implementing new technology is frightening on the lecturers and also the background and the budget of the lecturers are not enough to have their own training. The lecturers do not have the rights skills or concern about the technology and simply. For the lecturers, they have to memorize all of the skills which for them it is difficult to follow. The research study interviewed to the lecturers that the lecturers need more training, more purpose to use the technology and more confidence. The weakness of lecturers is their belief about their inability to create tech-integrated lesson. With the training regularly, giving a lot of motivation and purpose of using technology, the training will be run well.

The next step is to describe degree of lecturers' knowledge in using technology based on level of knowledge, age and description

No.	Level	Age	Description
1	Bad	57-65	Rarely aware or not aware of the knowledge how it can be used
2	Fair	34-40	Knows that the knowledge exists and where to get it but cannot reason with it
3	Good	41-47	Know the knowledge, can use the reason with the knowledge given external knowledge bases such as document and people to help.
4	Best	48-56	Hold the knowledge in memory, understand where applies, reason with it without any outside help.
5	Excellent	26-33	Has a deep understanding with full integration of knowledge and skills into value of using technology

Figure 2. Degree of Lecturers' Knowledge in using Technology which it is divided by level, age and description

The future lecturers in Indonesia cannot see the imperative to develop individuals who are tasked to take on the challenges faced by the country in the future and which the average of lecturer in Indonesia is from the age 26 through 75 or may be 80 years old. However, even if one adhered to such traditional methods, it would not hinder lecturers from becoming more innovative and creative because lecturers now have more access to sources of knowledge with the help of advanced technology. (Talisayon, 2008). As we welcome to the 21st century

learning process, all lecturers from all ages should train themselves. The age is not a problem anymore, because all lecturers need stronger knowledge systems to support the use of technology for teaching in the classroom (DIKTI, 2015). The more the lecturers use the knowledge systems the better they are in the classroom. The lecturers' age can be seen as their cognitive since the age has relationships to the cognitive (Beckman & Barry, 2007). Systematizing in the storage of technology, both open access and ease of use is critical to promoting the use of technology and to complementing a stronger knowledge of teaching is the need for lecturers (Dalker, 2005). The next research study is to discuss about the age of lecturers' using technology. The age of lecturers' cognitive is shown on figure 4.

No	Age	Cognitive	Description
1	26-33	Origination	Construct new theory and develop new way of understanding technology.
2	34-40	Adaption	Modifies instruction to meet the need of learners.
3	41-48	Mechanism	Lecturers learn technology become habitual and teaching can be performed proficiency
4	49-56	Complex Overt Response	Skillful performance of teaching that involve complex teaching with minimum of energy
5	57-65	Perception	Ability to use sensory cues to guide of using technology with selections and translation

Figure 4. Lecturers' Age of Using Technology which it is divided by lecturers' ages, lecturers cognitive and descriptive about the age and cognitive.

From data above, the research study is indicated that the first rank of age in using technology is 33 lecturers (30.8%) ; the age of 41-48 years old is the most age to use technology in the classroom with. As the age has the relationships with the cognitive, the intelligence becomes a form of competition that helps facilitate innovation, learning and adaption and quick response to a new situation and value above and beyond the value of the initial inputs. (Beckman & Barry, 2007). The lecturers' knowledge becomes the most valuable of the resources because it is critical in taking effective action in a variety of uncertain situation. The knowledge will typically consist of experience,

judgment, insight, context and the right information. The understanding and meaning become prerequisite to taking effective action, and the lecturers create value by ensuring the survival and growth of ICT.

The second rank of age in using technology is the age of 34-40. They are 30 lecturers (28%) with well developed skills and the individual can modify movement patterns to fit special requirement. For example the lecturers respond effectively to unexpected experiences. Also, the lecturers can modify the instruction to meet the needs of the learners. The performance of task with technology was not originally intended to do. (Webster, 2017). Although the sensory stimulation through cue selection and translation, lecturers can detect nonverbal communication cues, and know where the students will understand after it is being taught and then moves to the correct way of technology to meet the need of students. The lecturers can adjust the difficulty of technology and try to use technology by feeling what the students need. When adjusting the need of students, the lecturers give some questions and comparing to what he/she has just taught. In this case, the lecturers need more training to adapt the students need, because if the lecturers do not know the technology, it is very difficult to teach in the class. (Roque, Rusk, & Resnic, 2016).

The third rank of age of using technology is the age of 49-56. They are 21 lecturers (19.4%) with skillful performance of motor acts that involve complex movement of patterns. The lecturers are proficient in indicating by a quick accurate, and highly coordinated performance, but a minimum energy (Joye & Wilson, 2015). For example, the lecturers are satisfied or expletives because the lecturers can tell by the feel of the act what the result of students will be (Dalkir, 2005).

The fourth rank of age is at the age of 57-65 (14.8%) category bad. They are 16 (14.8%) with the ability of using technology is by having sensory cues to guide their motor skills activity. Most lecturers are fear to use technology since they think that they are old and have difficulty in using it. Besides, they are not comfortable and they are afraid of failing the technology in front of the class.

The last or fifth rank of age of using technology is the age of 26-33 (7%). At this age, the research study found that the respondents of

social science lecturers are only 7%. When we asked the lecturers about the total lecturers, they said, not so many lecturers wanted to be social science lecturers, because the subject is not interested to the young age and also most of them are working as civil servant at the government. At this age, lecturers have the highest knowledge of technology. The lecturers can create new movement of pattern to fit a particular situation or specific problem. The learning outcomes emphasize creativity based upon highly develop skills. The lecturers can construct a new theory and develop a new comprehensive training program (Dini, 2015). Usually, these lecturers help other lecturers to understand the use of technology. The lecturers make the routine teaching in technology. (Waitayankoon, 2007).

Then, the next discussion is about lecturers' gender to adopt the use of technology in the classroom. The lecturers' gender is shown on the figure 5.

No	Gender	Age	Total	Category
1	M	26-33	4	Excellent
	F		3	
2	M	48-56	14	Best
	M		17	
3	M	41-47	23	Good
	F		17	
4	M	34-40	11	Fair
	F		11	
5	M	57-65	3	Bad
	F		4	

Figure 5. Lecturers' Gender to adopt the use of technology in the classroom which it is divided by gender, total lecturers, category of lecturers and description

From data above the research study found that male (23) and female (17) are in category good. Means, both male and female lecturers have structure and mechanism ensuring the content of ICT within planning and decision making. In this category, they knowledge and structure of thinking have increasingly forced to work across disciplinary boundaries, and the lecturers found a need to be more precise in describing their processes to the others with whom they worked (Bransford, Brown, & Cocking, 2000). They can identify flaws in a process of successive approximation to a final solution, and the lecturers find the solution and

evaluation for determining the suitability the use of ICT.

The second is male (14) and female (17) in category of best. At this stage both male and female understand and full of commitment to pursuing goal of using ICT for campus and for them. These lecturers are called expert lecturers who know the message that easy to understand and to adopt. Each gender shows the greatest way of teaching. 14 male lecturers and 17 female lecturers can be developing frameworks of the most difficult task in the innovation process. The lecturers require taking in a lot of data of ICT and making sense of data which it requires the ability to see patterns, to parse the important information from the less information and to create models of teaching and it is shared across an innovation way of teaching. The lecturers also reframe the original perception of what the innovation of project is about to a new focus. (Chapman, Garret, & Mahlck, 2004).

The third category of male (11) and female (11), it is in category fair. This kind of lecturer can play a crucial role; focus on strategy of ICT which it is to be made for the learning process that remembers the paradox of knowledge value. In campus, all lecturers do not have equal training. The training takes turn, and some of the lecturers do not have a chance to have the training, because they are part time lecturers. The position of lecturer is specified in responsibility of whom they are from (Haryanto, 2017). The fairness of having training depends on the budget of the campus and government. With the fairness skill which can play a crucial role, and focus on strategy of ICT, it is probably that lecturers can have their own training to fill their knowledge and skills. The lectures have 2 ways of facing the opportunity for themselves. (a) The lecturers should think through all possibilities before making move to increase the knowledge and skill either taking school to move to the next degree and (b) the lecturers think through all the possible counters moves of the campus for every move considered, means the lecturers teach in each school part timely to make the end living. (Bransford, Brown, & Cocking, 2000).

The next is male (4) and female (3) in category of excellent. Most lecturers are very expert in using technology. It is very unlikely that they are teaching social science subject, because they are more like to teach in other subject. Teaching with technology can deepen

student learning by supporting instructional objectives. To select the best technology while not losing sight of lecturers' goals for student learning (Center, 2014). The lecturers can identify, integrate ICT to challenge albeit an eye-opening experience, also, the lecturers can help the novice lecturers to find creative and constructive way to integrate technology into their teaching. (Atkinson & Wilmot, 2001).

The last one is male (3) and female (4) with bad category. In this category, both male and female lecturers are participated on using ICT and as a participatory mechanism both of them can make decision whether to use ICT or not. Usually, this kind of lecturer is old lecturer and do not know exactly to use technology well in the classroom. One aspect of lecturers' use of technology that had been missing from the study is how to access the technology (Chapman, Garret, & Mahlck, 2004). The lecturers are unable to focus on technology itself while the pedagogic of teaching asks them to use. The lecturers actually eager to use ICT but they need more trainings. For other lecturers might have only once or twice training, but for this kind of lecturers need more than twice of training. The novice user of technology needs to follow many steps of ICT in order to use the right kind of ICT in the classroom. And the lecturers who have category excellent, best and good, are able to train them.

The research study focuses on the kinds of ICT being brought into the classroom and used by the lecturers at home and classroom, and it is reported about how this has changed lecturers' pedagogical approaches aside from how they use the ICT step by step to into the other level of ICT, in other word, it can probably infer from the result how the roles of lecturers and students have changed in the classroom that implement more technology. (Starr, 2017).

Discussion

In this research study found out that the first most lecturers using technology is not because they are expert in technology, but the lecturers' knowledge to use together with the use of technology in the classroom is a part of the modern teaching right now is competent enough even though sometimes they need some help for the technology (Center, 2014). Some of the lecturers are very skillful and their memories are still sharp to apply the knowledge without help even though they have minimum energy

because the age is older (Beckman & Barry, 2007). According to Nentl & Zietlow (2008) the thinking skill is in highly level of critical thinking which they can distinguish the fact and the opinion and identify the claim upon what the argument is build require of analysis. The lecturers' characteristics are likely to play a significant role about the effectiveness to find the understanding, making use of organizational knowledge. Individual characteristics may include for example, personality style, their preferences regarding how individuals best learn, how they prefer to receive their information as well as how they can best be helped to put the knowledge to work (Dalker, 2005). And the expert lecturers who use ICT in the classroom and sometimes they are the people to ask questions from other lecturers in accommodating the language of teacher and also the use of ICT model in the classroom. Their ability and their goals are the examples for other lecturers (Butler & Sellbom, 2002).

Beside the availability of the use technology also the class size, class setup, the evaluations based on students and contextual variables, recognizing that negative emotions may become associated with the subject of teaching and the lecturers themselves. (Joye & Wilson, 2015). However, the research study has found that students' perceptions are influence by instructor gender, age, and attractiveness and with whom the students have interacted. The interactions between students and lecturer bring nuisance variability associated with a number of variables, including instructor experience, skill and warmth that potentially have correlation with less changeable instructor characteristics, for example, positive social interactions may actually lead students to provide higher evaluation over time. (Dini, 2015).

Gender plays important roles for lecturers who use technology and both male and female lecturers have equal access to provide the use of technology. Males are likely to use computers than female, and males are actives and have positive attitude toward using technology (Yau & Cheng, 2012). They can identify flaws in a process of successive approximation to a final solution, and the lecturers find the solution and evaluation for determining the suitability the use of ICT. When lecturers capture the knowledge in the classroom, it is not purely about technology,

because campuses find that information technology plays only small part in ensuring the information which it is available to those who need it (Dalker, 2005). The approach needed depends on the kind of teaching, its each campus has its own culture, and the ways in which people solve problems. Some campuses generally deliver standard products and services while others are constantly looking for a new ways of doing things. Connecting to those, the budget of campus plays important role to increase lecturers' knowledge and skills of ICT.

CONCLUSION

Technology in the classroom has changed the fundamental structure that can be integrated to achieving significant improvement in productivity of the outcomes. To support both teaching and learning, technology infuses classrooms with digital learning tools, such as computers and hand held devices; expands course offerings, experiences, and learning materials; supports learning 24 hours a day, 7 days a week; builds 21st century skills; increases student engagement and motivation; and accelerates learning (Chapman & Mählek, 2004).

As the age has the relationships with the cognitive, the intelligence becomes a form of competitive that helps facilitate innovation, learning and adaption and quick response to a new situation and value above and beyond the value of the initial inputs. (Beckman & Barry, 2007). The lecturers' knowledge becomes the most valuable of the resources because it is critical in taking effective action in a variety of uncertain situation. The knowledge will typically consist of experience, judgment, insight, context and the right information. The understanding and meaning become prerequisite to taking effective action, and the lecturers create value by ensuring the survival and growth of ICT.

Gender analysis is the critical starting point, but it should be an essential element of the professional competence of lecturer. Strategies to develop adequate institutional or campus capacity for gender analysis should include competence development programs as well as the development of guidelines and good practices of ICT. The implementation of gender is the commitment management and the establishment of effective accountability

mechanism. (King, 2002). Experience has shown that development of training program from institution, guidelines and other materials are the commitment to this matter. Ways and means of promoting, facilitating and rewarding efforts to bring gender perspectives to the center of attention should be develop.

ACKNOWLEDGEMENT:

This research study is dedicated to Universitas Buddhi Dharma. I would like to thank to the dean of faculty of Science and Technology, Dr. rer. nat. Gregoria Illya and head of Study Program Information Technology, Fanny Fransisca M.Kom, for their supports to finish this research. I would like to contribute this research to Kota Tangerang especially in Higher Education. Thank you to all friends, Social Science lecturers for the support of this research.

REFERENCE

Associates, G. (2003). *Schools and the internet*. Still Spring Ct, Bethesda, MD: Grundwald Associates.

Atkinson, R., & Wilmot, S. (2001). Can multimedia meet tertiary educational needs better than the conventional lecture? A case study. *Australian Journal of Educational Technology* , 17(1), 1-20.

Beckman, S. L., & Barry, M. (2007, 11 01). Innovation as a Learning Process: Embedding Design Thinking. *California Management Review*, Volume 50 No.1 , pp. 29-31.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How People Learn; Brain, Mind and Experiiece*. Washington, DC: National Academy Press.

Butler, D. L., & Sellbom, M. (2002, November 2). Barrier to adopting Technology for

Teaching and Learning. *Educause Quarterly*, Number 2 , pp. 50-62.

Center, A. f. (2014). *The five core competencies of the competence profile of a beginning lecturer at a university of applied sciences* . VRIJE UNIVERSITEIT AMSTERDAM.

Chapman, D. W., & Mählck, L. O. (2004). Adapting technology for school improvement: a global perspective. In V. L. Suguri, M. d. Matos, N. M. de Resende e Castro, R. v. Guimarães de Castro, L. M. da Silva Jung, & E. Rusten, *Chapter 10 The pedagogical uses of web-based chat: the Brazilian experience* (p. 224). Paris : International Institute for Educational Planning ; UNESCO .

Chapman, D. W., Garret, A., & Mählck, L. O. (2004). The Role of Technology in School Improvement. In Cha, D. W. Chapman, & L. O. Malck, *Adapting Technology for School Improvement: A Global Perspective* (p. 23). Paris: International Institute for Educational Planning.

Chen, M. (1986). Gender and computers: The beneficial effects of experience on attitude. *Journal of Educaitional Computing Research*, 2. , 265-281.

Dalker, K. (2005). *Knowledge Management in Theory and Practice*. P. 168. Oxford: Elsevier Butterworth–Heinemann.

Dalkir, K. (2005). *Knowledge Management in Theory and Practice* . Oxford OX2 8DP, UK: Elsevier Butterworth–Heinemann P-20.

de Moura Castro, C. (2004). Are new technologies better technologies? For whom? In W. D. Chapman, & O. L. Mählck, *Adapting Technology for School Improvement: A Global*

- Perspective* (p. 42). Paris: International Institute for Educational Planning.
- DIKTI, K. (2015). *Peraturan Menteri Riset, Teknologi, Dan Pendidikan Tinggi Republik Indonesia Nomor 44*. Jakarta: PERMENRISTEKDIKTI-NOMOR-44-TAHUN-2015-TENTANG-SNPT-SALINAN.pd.
- Dini. (2015, October 28). *Dampak Positif dan Negatif Penggunaan Teknologi Informasi dan Komunikasi*. Retrieved from DosenIT.com: <http://dosenit.com/kuliah-it/teknologi-informasi/dampak-positif-dan-negatif-penggunaan-teknologi-informasi-dan-komunikasi>
- Goswami, A., & Dutta, S. (2016). Gender Differences in Technology Usage—A Literature Review. *Open Journal of Business and Management* 4 , 51-59.
- Graham, D. (2016, December 7). Paid With Compliment, Not Cash. Jakarta, DKI, Indonesia.
- Guerriero, S. (2013). *INNOVATIVE TEACHING FOR EFFECTIVE LEARNING* . Paris: Organisation for Economic Co-operation and Development.
- Haryanto, W. (2017, February 12). How to Teach Well in the Classroom and the Use of ICT. (H. Mardiana, Interviewer)
- Hutchison, A., & Reinking, D. (2011). Teachers' perception of integrating information and communication technologies into literacy instruction: a national survey in the United States. *Reading Research Quarterly* , 312-333.
- Isman, A. (2004). Attitudes of Students Towards Computers. *The Turkish Journal of Educational Technology* , 3(1),2.
- Joye, S. W., & Wilson, J. H. (2015). Professor Age and Gender Affect Student Perceptions and Grades. *Journal of the Scholarship of Teaching and Learning*, Vol. 15, , pp.126-138.
- King, A. E. (2002). *Gender Mainstream an Overview*. New York: United Nation.
- Kneale, P. (2009). Teaching and Learning for Employability. In H. Fry, S. Ketteridge, & S. Marshall, *A Handbook for Teaching and Learning in Higher Education* (pp. 99-112). New York: Routledge.
- Kpolovie, P. J., & Awusaku, O. K. (2016). ICT ADOPTION ATTITUDE OF LECTURERS. *European Journal of Computer Science and Information Technology Vol.4, No.5* , 9-57.
- Mählck, L. O., & Chapman, D. W. (2004). Chapter 14: Effective use of technology to improve education: lessons for planners. In D. O. Chapman, & L. O. Mählck, *Adapting technology for school improvement:a global perspective* (p. 298). Paris: International Institute for Educational Planning.
- Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record Volume 108, Number 6* , 1017-1054.
- Motamedi, V. (2012, March 24). Integration of technology in our classrooms: A divisive issue. Tehran, Iran 15614.
- Nandika, D., Priowirjanto, G. H., & Soekartawi. (2007). *Integrating ICT for Better Quality and Values of Education: LESSON FROM INDONESIA*. Bali, Indonesia: Special Duty Officer of the Ministry of National Education.

- Nentl, N., & Zietlow, R. (2008). Using Bloom's Taxonomy to Teach Critical Thinking Skills to Business Students. *College and Undergraduate Libraries Vol. 15 Issue 1-2* , Pages 159-172 .
- Olafare, F. O., Adeyanju, L. O., & Fakorede, S. O. (2017). Colleges of Education Lecturers Attitude Towards the Use of Information and Communication Technology in Nigeria. *Malaysian Online Journal of Educational Sciences Volume5 - Issue 4* , 1-12.
- Onasanya, S. A., Shehu, R. A., Oduwaiye, R. O., & Shehu, L. A. (2010). Higher Institutions Lecturers' Attitude Towards Integration of ICT into Teaching and Research in Nigeria. *Research Journal of Information Technology 2* , 1-10.
- Purcel, K., Heaps, A., Buchanan, J., & Friendrich, L. (2013, February 28). *Internet, Science & Tech*. Retrieved from PEW RESEARCH CENTER: <http://www.pewinternet.org/2013/02/28/how-teachers-are-using-technology-at-home-and-in-their-classrooms/>
- Region, H. D. (2009). *Indonesia: Higher Education Financing*. Jakarta: Document of World Bank.
- Roque, R., Rusk, N., & Resnic, M. (2016). Design Environments for Creative Collaboration. *Supporting Diverse and Creative Collaboration in the Scratch Online Community* , 10.
- Rules and Regulation, I. G. (2009). *Bagian Kesepuluh: Kebebasan Akademik, Kebebasan Mimbar Akademik, dan Otonomi Keilmuan*. Retrieved from Pasal 28 No.2 PP 37 Tahun 2009 Page 23: http://sipma.ui.ac.id/files/dokumen/U_DOSEN/PP%2037%20Tahun%202009%20DOSEN.pdf
- Starr, L. (2017, April 20). *Encouraging Teacher Technology Use*. Retrieved from Educational World: http://www.educationworld.com/a_tech/tech159.shtml
- Talisayon, S. D. (2008). *Part IV: Concluding Observations*. Tokyo: Asian Productivity Organization.
- Vermunt, J. D. (1998, June 13). The regulation of constructive learning processes. *British Journal of Educational Psychology, Volum 68 Issue 2* , pp. 149-171.
- Waitayankoon, P. (2007). ICT. In S. Tinsiri, *ICT in Teacher Education: Case Studies from the Asia-Pacific Region* (pp. 110-115). Bangkok: United Nations Educational, Scientific and Cultural Organization (UNESCO).
- Webster, M. D. (2017). *Mediated Communication, Cooperative/ Collaborative Learning and Mediated Communication, Cooperative/ Collaborative Learning and Mediated Communication, Cooperative/ Philosophy of Technology Assumption in Educational Technology Leadership*. Taiwan: National Sun Yat-sen University Volume 20 No.1 .
- Yau, H. K., & Cheng, A. L. (2012). Gender Difference of Confidence in Using Technology for Learning. *The Journal of Technology Studies* , 74-79.