Does Short Training Has Effect on E-Learning Adoption in Learning Process?

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Abstract

This research explores short training effect on e-learning technology acceptance in classroom learning process. This research adopting Davis's (1989) Technology Acceptance Model (TAM) that is focused in three main aspects in adopting technology there are; Perceived Usefulness, Perceived Ease of Use, and Intention to Use.

Quasi experiment method was conducted on 28 lecturers from several departments of Yogyakarta State University that have age 24-57 year old (mean 35 years old). Short training was conducted in 4 sections which has 3 hour long per session. All of data is taken using questionnaire that is tested using validity and reliability test. Paired t-test is applied to explore the differences of participant's perceptions on three aspects of e-learning technology acceptance before and after the short training is conducted. In further analysis, an additional analysis on training quality aspects was conducted that can be a locomotive on training's success in adopting e-learning.

Paired t-test shows mean differences before and after short training at all technology acceptance aspects. Before and after short training, Perceived Usefulness has mean differences (increase) 9.85 with t=4.73 and sig.= 0.00, Perceived Ease of Use mean increase 6.00 with t=4.02 and sig.= 0.00, and Intention to Use mean climb 4.46 with t=4.66 and sig.=0.00. Those results prove that short training can drive e-learning technology adoption. Further analysis on training facilities, training module, and delivery quality were conducted to explore training progress quality. Participants perception on training facilities, training module, and delivery quality shows very high values with 68%, 50%, and 43% respectively. Base on that result can be concluded that those factors are the training success trigger. Moreover, 57% and 61% participants said that their skill and understanding respectively increase dramatically.

Keywords: Short Training, Technology Acceptance Model, E-learning

1. Introduction

Training is the process to teach the skill on employees to get the basic skill that is needed to do their job (Dessler, 1997). In that context, it can be seen that the training is one of the activities to prepare the existing human resource in the organization to implement its function. Besides, in order to implement the function in the organization, the training for staff can be used as the method to improve performance of existing human resource (Agustina, 2000). The performance improvement is supported by the knowledge from the training. The method for organizing the training can be used for long or short term.

Long term training can be organized to teach more modules in a longer time. Besides, the long term training can be done to get the adequate understanding in a competence. Meanwhile, the short term training is usually organized for limited topic due to the limitation of time. The problem in short term training is when the participants are required to master a competence quickly. The short term training can be ineffective when the participants are required to master many competences, while the time is not enough. In the technology adoption, the training is needed as the method to accelerate the adoption or to improve the success in the technology implementation to end user.

Theory of technology adoption was introduced for the first time by Davis (1989) by proposing the acceptance model that is comprehensive enough, Technological Acceptance Model (TAM). The model balances the behavioural aspect of human being into the concept of acceptance or refusal of a technology during implementation. This model is validated by some researchers in several models and forms of information system.

E-learning is a form of technology in educational institution for supporting the learning process. The success of adoption by the teacher is important factor in the success of e-learning use. The most critical stage in the success of information system is when the system condition is accepted or refused (Compeu and Higgins, 1995). The acceptance of learning technology can be influenced by the lack of participation from the users themselves. Participation and involvement of users are important aspects of behaviour in preventing the refusal of a system (Fahmi Natigor, 2004). The participation of e-learning uses in the research is still low and it was shown by the data on the use of e-learning that indicated there were averagely only 30 courses to use e-learning and 60% (33 from 50) of study programs to have the courses with e-learning under the average (<30).

The aspect of e-learning refusal is the perception on the benefit of e-learning in learning process. People will have the tendency to not do activity without any advantage for themselves. Besides the usefulness perception, the perception

on the easiness of system will also trigger the success of information system adoption. A system will be perceived easy and useful and it becomes more interesting for the users to use the system.

One of the strategies to do for solving the failure of e-learning adoption is the long term and short term trainings. The training is method of knowledge transfer that can improve understanding of participants. The training can be used to change the perception of participants on easiness of use and to explain the possibility of benefit from the e-learning users in learning process. Thus, the change of perception on benefit and use is expected to improve the intention for using e-learning in learning process. However, the common problem in implementation of training is the availability of time. The organization of training is short with the complex competence to learn. The risk of short term training is the failure in the achievement of training purpose, the failure in improving the adoption of e-learning in learning process.

2. Literature Review

2.1. Technological Acceptance Model (TAM)

TAM was introduced by Davis in 1989 by considering the behavioural aspect from the users of information system. TAM is the model that is commonly used for evaluating the success of adoption level of information system. TAM, the adaptation of Theory of Reasoned Action (TRA), states that the behaviour of technology use is influenced by the beliefs of the users including the perceived of usefulness and perceived ease of use. The perceived of usefulness of system refers to the "level where someone believes that the use of certain system will improve the performance", while the perceived ease of use of system refers to the "level where someone believes that the use of certain system can be done easily and effortlessly" (Davis, 1989). According TAM, person who has the perception that a technology is useful and easy to use will develop positive attitude and intention to accept and use the technology (Taylor and Todd, 1995).

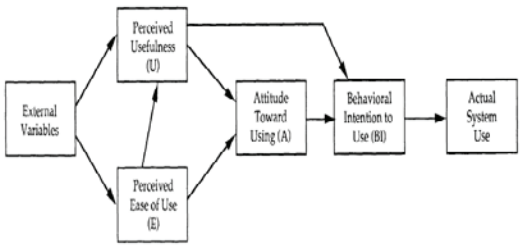

Figure 1 : Technology Acceptance Model (Davis et al. 1989)

In the beginning, TAM included variable attitude toward using, but it was removed since the role was weak in mediating relationship among the intention to use and the belief of users (Venkatesh and Davis, 2000; Yi et al, 2006). TAM has been the model that is used comprehensively for predicting attitude, intention, and behaviour in the use of new technology. This model explained around 40% of variances of individual intention to use information technology (Venkatesh & Davis, 2000; Venkatesh & Bala, 2008).

2.2. Training

The training is the learning process of skill in the organization for new or older members (Dessler, 1997). In this context, the training is intended for the member of organization for improving the competence. Nitisemito (1996) stated that the training is the activity in the organization to develop attitude, behaviour, skill, and knowledge based on the need of the participants. The training can be used to improve the performance. Every effort to improve the performance of a company that is related to the task and responsibility in the organization can be defined as the training (Gomes, 2002).

The main purpose of training is 1) to develop the skill, 2) to develop knowledge, 3) to develop attitude (Moekijat 1991). In this research, the training can be used to improve the implementation of value that influences the attitude on e-learning. Another function of training is to improve the quality of productivity, to reduce the study time to make the employees achieve the acceptable standards, and to help the employees to develop themselves (Simamora, 1997).

2.3. Component and factor that influence the training

2.3.1. Topic of training

Manullang (2004) defined that the topic is determined by the assessment of need. The given topic is specific skill, to give the knowledge or effort to influence the attitude. The topic must fulfill the need of organization and participants. The topic is the guidance for the teaching and learning activities in developing the skill of employee, the topic must be adjusted with the organization plan, need, and time that are planned.

2.3.2. Trainer

Manullang (2004) stated that one of variables that really determine the effectiveness of training is instructor or trainer, instead of participants and method of training. There are three important qualifications that must be fulfilled by every instructor, namely the deep knowledge on the topic, understanding on several methods of training, and intention to teach. The lack of one of those qualifications will cause the failure in teaching the topic. Thus, the instructor of training must be skillful, mastering the topic of training, method of training, and motivating the employees based on the module.

2.3.3. Method of Training

Hardjana (2001) explained that "method of training is the used way and implemented steps in achieving the purpose of training, comprehensively or per session". In other words, training methods

are ways and techniques of communication in presenting and implementing learning process, by the trainer or participants.

2.4. E-learning

E-learning (the abbreviation of electronic learning) is the new way in teaching and learning activities due to the development of technology of information and communication. E-learning can be assumed as one of learning methods to use technology. Abbas (2010) stated that e-learning is the long distance learning to use technology of computer, network, and internet. E-learning enables the students to study with computer in their own place without attending the class in real world. While, Dong (1989) and Asep (2010) defined e-learning as the asynchronous study through electronic device or computer to get the topic based on their need.

2.5. Previous Research and Development of Hypothesis

Many previous researches studied the success of technology adoption on the organization. Previous research found the factors that influence the success of adoption. The results of previous researches are presented on Table 1.

Table 1: Previous Finndings

Researchers	Adoption sucess factors
DeLone (1988)	• Top mangement knowlege on computer • User acceptace of employee • Computer trainin level
Hargo, (2001)	• IT understanding level
Munasinghe, (2003)	• Understanding between user and system
Arfan, (2003)	• IT ease of use
Nanang, Pokharel, and Jiao, (2003)	• Knowledge on IT
Surachman (2007)	• Perceived Usefulness • Perceived Ease of Use
Kartika (2009)	• Perceived Usefulness • Perceived Ease of Use • Perceived attitude
Muhammad S.B (2007)	• Perceived Usefulness • Perceived Ease of Use • Attitude toward using
Juliansyahwiran (2009)	• Motivation • Computer self efficacy • Perceived ease of use • Perceived usefulness • Attitude toward using • Behavioral intention to use • Actual use.

One of classical researches on the technology adoption is the research of DeLone (1988). The research explained the factors of information technology adoption. DeLone (1988) stated that the management knowledge, the acceptance of computer use by the worker, and the training are the factors of technology adoption success. The finding of research showed that the training is the important factor in the success of information technology adoption in an organization. Training can improve the understanding that can support the acceptance of technology in an organization. In the context of this research, it is the acceptance of e-learning in the learning process.

Hargo (2001) stated that the understanding on information technolology can influence its distribution. The finding is supported by (Munasinghe, 2003) who stated that the understanding among the users is factor to cause the success of technology adoption. One of the methods to get the understanding is the training. The purpose of the training is to develop understanding and knowledge (Moekijat 1991). The technology can improve the understanding and the intention to adopt the information technology.

Percieved ease of use on information technology is a factor to cause the success of information technology development (Arfan , 2003). Implementation of TAM in the adoption of information technology was also done by Surachman (2007) and Kartika (2009). Those two researchers found that the perceived ease of use, perceived usefulness, and intention to use are the factors to cause the e-learning success. The implementation of those three variables on e-learning was done by Juliansyahwiran (2009) who found the determinant of success in e-learning implementation.

The training is the factor to improve understanding (Moekijat, 1991) and indicators of e-learning adoption success are the perceived ease of use, perceived usefulness, intention to use (Juliansyahwiran, 2009). The training is effort to improve the understanding on benefit and easiness on the use of e-learning from the intention to use it in the learning process. In the context of technology acceptance, the understanding can improve or reduce perceived usefulness, perceived ease of use, and intention to use from participants of training.

H1: The long term training influences the perceived ease of use in the e-learning

H2: The long term training influences the perceived usefulness in the e-learning

H3: The long term training influences the intention to use in the e-learning

3. Methodology

3.1. Population and Sample

The samples of research were 28 lecturers from some faculties and fields of study. The research was conducted with the training in 4 short sessions with 3 hours per session for 2 weeks with the interval 1 week to provide time of appointment that was collected in the last session. During the training, the participants got the incentive to

support other participants to accomplish the given task.

3.2. Definition and Measurement of Variable

3.2.1. Perceived Of Usefulness

Perceived of usefulness is defined as a level where someone believes that the use of certain system can improve the performance (Davis, 1989). Perceived of usefulness is measured with 6 items of questions with the Likert scale 1-7 adopted from Davis (1989).

3.2.2. Perceived Ease Of Use

Perceived ease of use is defined as a level where someone believes that certain system is easy to use (Davis, 1989). Perceived ease of use is measured with 6 items of questions with the Likert scale 1-7 adopted from Davis (1989).

3.2.3. Intention to Use

Intention to use is defined as a subjective probability to do certain behaviour (Yi et al, 2005). Intention to use was measured with 3 items of questions with the Likert scale 1-7 adopted from Davis (1989) and used in Yi et al (2006).

3.3. Validity and Reliability Tests

Validity was used to measure whether the items of questions are valid or not by counting every item of question in the questionnaire with total score (Imam Gozali, 2009). The determination of validity on certain item of question was based on the comparison of result of calculation with r of table. If the value of r of calculation is higher than r of table, it can be concluded that the instrument is valid. The correlation value (r of calculation) of all questions in every variable of research was higher than r of table. Thus, all questions on every researched variable were valid.

Reliability of measurement tool on questions in questionnaire as the indicator of variable or construct (Imam Gozali, 2009). Instrument reliability was measured with cronbach's alpha value. Based on result of measurement, the value of cronbach's alpha of every researched variable was higher than 0.7 and every variable in the research was reliable. Thus, item of question in the questionnaire was the indicator of researched variable

3.4. Skweness Analysis

Skweness Analysis of data was used to analyze the tendency and pattern of received data to understand the tendency of data direction and its categorization. The determination of interval class, data range, and class range was needed to make the table of frequency distribution. The class interval was determined with the *Strugess* formula as follows:

$$K = 1 + 3.3 \log n$$

Data range is determined by reducing the highest score with the lowest score from variables that will be distributed. The determination of class range is done by dividing the class with number of class. The technique from Sutrisno Hadi (2004) is used to make categorization. The categorization of data must be based on ideal mean and standard deviation

$$Mi = [ST + SR]: 2$$
$$DSi = [ST – SR]: 6$$

After the ideal mean value and deviation standard are received, the data can be categorized into five categories as follows:

Very high category: $X \geq Mi + 1.5\ DSi$
High category: $Mi + 0.5\ DSi \leq X < Mi + 1.5\ DSi$
Moderate : $Mi – 0.5\ DSi \leq X < Mi + 0.5\ DSi$
Low category: $Mi – 1.5\ DSi \leq X < Mi – 0.5\ DSi$
Very low category: $X < Mi – 1.5\ DSi$

3.5. Hypothesis Testing

The hypothesis testing is based on paired t-test to analyze the average difference from the taken sample. The testing is compared the result of test then it was compared to analyze the average difference before and after the short term training.

4. Research Finding

4.1. Statistical description of respondent

The respondents were 28 lecturers who teach at Yogyakarta State University. Respondents were 19 women and 9 men. The lowest education of respondent was postgraduate on their own field.

4.2. Skweness Analysis

Skweness Analysis was used on the perception of participants on the facility of training, module of training, the delivery of module, the improvement of understanding, and improvement of skill. Skweness Analysis was used to explore the supporting factors of success in the training. When the training is well organized, the influence of training on adoption success can be free of disturbance.

4.2.1. Facility of Training

The perception of participants on the quality of facility for training is presented on Table 2. Based on the table, the used facility for training was adequate. It can be shown by the majority of participants (68%) who stated that the quality was very high.

Table 2: Facility of Training Skweness

Category	Amount	%
Very High	19	68%
High	1	4%
Moderate	0	0%
Low	2	7%
Very Low	6	21%
Total	**28**	**100%**

4.2.2. Module

The opinion of participants of training on the quality of module is presented on table 3. The majority of participants evaluated that the used module for training was adequate. 50% of all participants evaluated that the quality of module was very high and 14% of participants evaluated that the quality of module was high.

Table 3: Module Quality Skweness

Category	Amount	%
Very High	14	50%
High	4	14%
Moderate	0	0%
Low	3	11%
Very Low	7	25%
Total	**28**	**100%**

4.2.3. Delivery

Delivery of module is determinant of success for the training. The quality of delivery depends on the quality of instructor. The perception of participants on the delivery quality is presented on table 4. More than 61% of the participants assumed that the quality of instructor was very good or good.

Table 4: Delivery Quality Skweness

Category	Amount	%
Very High	12	43%
High	5	18%
Moderate	2	7%
Low	5	18%
Very Low	4	14%
Total	**28**	**100%**

4.2.4. Understanding Improvement

The improvement of understanding is the purpose of the training. The participants are expected to improve their understanding. Table 5 shows the perception of participants in the training on the improvement of understanding. The table shows the fact that the participants of training evaluated that their understanding on the module of training improved. 68% of the participants evaluated that their understanding improved very well or well.

Table 5: Understanding Improvement Skweness

Category	Amount	%
Very High	16	57%
High	3	11%
Moderate	0	0%
Low	1	4%
Very Low	8	29%
Total	**28**	**100%**

4.2.5. Skill Improvement

The skill is also intended to improve the skill. Table 6 shows the perception of participants in the training on the improvement of skill. Most of the participants evaluated that their skill on the module of training improved. 72% of the participants assumed that their skill improved very well or well.

Table 6: Skill Improvement Skweness

Category	Amount	%
Very High	17	61%
High	3	11%
Moderate	0	0%
Low	1	4%
Very Low	7	25%
Total	**28**	**100%**

4.3. Hypothesis Testing

Hypothesis testing was done by using the paired t-test to analyze the average difference before and after short term training. The result of test is shown on table 7. Result of research shows the difference of all aspects of technology acceptance in e-learning. The paired te-test shows the difference of mean before and after the training for PU 9.85 with t 4.73 and sig 0.00, PEoU has the difference of mean 6.00 with value of t 4.02 and significance traf 0.00, and ItU has the increase of mean 4.46 with the value of t 4.66 and significance value 0.00. From the result, it can be concluded that short training can improve acceptance/adoption of technology for e-learning. H1, H2, and H3 are supported.

Table 7: Hypotheses Test Result

	Paired Differences			
	Mean	**t**	**df**	**Sig.**
PU_pre - PU_post	-9.85714	-4.733	27	.000
PEoU_pre - PEoU_post	-6.00000	-4.023	27	.000
ItU_pre - ItU_post	-4.46429	-4.663	27	.000

4.4. Discussion

This research analyzes the influence of short training in the acceptance of technology for e-learning for supporting learning process. This research proposes 3 hypotheses based on the concept of technology acceptance TAM by Davis (1989) and it was validated by many researches on technology. Those three proposed hypotheses are as follows: H1: The short term training influences the perceived ease of use in the e-learning, H2: The short term training influences the perceived usefulness in the e-learning, H3: The short term training influences the intention to use in the e-learning. All hypotheses are supported by results of testing.

The support on those three hypotheses shows that the training is able to improve the acceptance of information technology (e-learning). It is suitable with the research of Delone (1988) who stated that the acceptance factor is the training for computer. Furthermore, Hargo (2001) and Munasinghe (2003) found that the understanding on information technology influences the success in its adoption. The research supports the previous research indirectly stating that the understanding is the support of success in adoption of information technology.

The research shows that the short term training can improve the acceptance of information technology. It is also shown by the improvement of common perception on the benefit of e-learning, the perception of easiness, and the intention to adopt e-learning. The result is supported by the validation of previous research that places the Perceived Usefulness and Perceived of Use as the determinants of success in the adoption of information technology.

5. Conclusion

From the result of this research, it can be concluded as follows:

a. The short training influences the perceived ease of use in e-learning. It can be shown with the difference of mean before and after the training that is 9.85 with t 4.73 and sig 0.0.
b. The short training influences the perceived usefulness in e-learning. It can be shown with the difference of mean before and after the training that is 6.00 with t 4.02 and sig. 0.0.
c. The short training influences the intention to use in e-learning. It can be shown with the increase of mean before and after the training that is 4.66 with t 4.66 and sig. 0.0.

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