Technology Acceptance Model to Solve E-Learning Problem for Teacher in School

Inayatulloh
Information Systems Department
School of Information system
Bina Nusantara University
Jakarta, Indonesia 11480
Inay@ binus.ac.id

Yenny Desnelita,
Institut Bisnis dan Teknologi Pelita
Pekanbaru, Indonesia
yenny.desnelita@lecturer.pelitaindonesia.ac.id

Eka Sasmita Mulya
Civil Engineering, Politeknik Negeri
Jakarta, Depok Indonesia
eka.sasmitamulya@sipil.pnj.ac.id

Hendra Alianto
Information System Department
School of Information System
Bina Nusantara University,
Jakarta, Indonesia
Hendraalianto@binus.ac.id

Abstract

There are many benefits from the implementation of e-learning so that the implementation of E-learning has become a necessity for education in Indonesia, including at the school level, but the implementation of e-learning at the school level is constrained, one of which is due to the factor of the ability of teachers to use e-learning. The purpose of this research is to help teachers use e-learning as part of improving the quality of educators in using technology that supports online learning using the Technology Acceptance Model. The research method uses observation and interviews to obtain information related to teacher problems in using e-learning. The outcome of this study is the implementation of the Technology Acceptance Model to help teachers use e-learning in schools.

Keywords
TAM, e-learning, Model, quality of educators, teacher.

1.Introduction
The data innovation insurgency has driven to fast extension over a wide extend of zones within the present day world. This has completed it an fundamental prerequisite for universities, colleges and other instructive teach to recognize probable aids from these changes so as to make strides instructing and education situations as well as adapt with a never expanding request for instruction and preparing, fact out that both instructive educate and private enterprises have been speedy to offer separate instruction programs, utilizing data and communications advances (ICT), as a implies to address this request. Separate education has, of course, been in presence for a significant

distance of period some time recently the appearance of computerized innovations and has continuously utilized modern infrastructures advances(Malalla,2004),(Sonwalkar,2002).

The benefit of distance instruction or learning as shown can be perceived from three perspectives. From the student's point of view, it implies flexibility from a few of the limitations of time, of put and nation, and of age with more prominent get to to more openings for proceeding teaching (Ismail,2003). E-learning gets to be a need since of the a few benefits it produces, such as giving a special opportunity for learner control. Learner control for the most part alludes to "a mode of instruction in which one or more key directions choices are appointed to the learner" (Wydra, 1980). In other words, students are assumed knowledge over directions choices that were customarily educators- or program organized (Ross, 1989).

Be that as it may, the usage of e-learning in schools is hampered by one of the variables due to the moo information of instructors approximately e-learning, particularly related to innovation that underpins the learning prepare with e-learning. The restricted information of instructors approximately the innovation utilized to function e-learning may be a enormous issue that gets to be an obstacle to the usage of e-learning. (Perwira,2019),(Dessta,2015). In this way this investigate points to extend instructor association in e-learning by utilizing the Technology acknowledgment demonstrate approach. The result of this inquire about is the improvement of TAM to assist instructors actualize e-learning in schools

2.Literature Review
2.1 Mobile payment
E-learning is one frame of encouraged learning show and bolstered by the utilize of data and communication innovation. E-learning has characteristics, among others.(Clark,2008)

a.   Have substance that's significant to learning objectives; b. using strategies guidelines, for case the introduction of cases and works out to improve learning;
b.   Using media components like words and pictures to communicate learning fabric;
c.   Enable centered coordinate learning on the instructor (synchronous e-learning) or outlined for self-learning(asynchronous e-learning);
d.   Build understanding and related aptitudes with the reason of learning both separately or move forward execution gather learning.
e.   Interactivity, independency, availability and enrichment.

E-learning can be characterized as a frame of data innovation connected in instruction in shape the internet. The term e-learning is more suitable planning as an endeavor to form a change of the learning forms in school or college into the innovation bridged computerized frame the web.

2.2 Technology Acceptance Model
Figure 1 show the TAM or Technology Acceptance Model (TAM) could be a show that receives the hypothesis of contemplated activity TAM may be demonstrate that joins cognitive convictions with person demeanors and behavior towards innovation acknowledgment. TAM is at that point utilized to clarify the behavior of person beneficiaries towards information innovation which concludes that seen value and seen ease of utilize are the most determinants of innovation utilize (Davis, F. D. (1989).
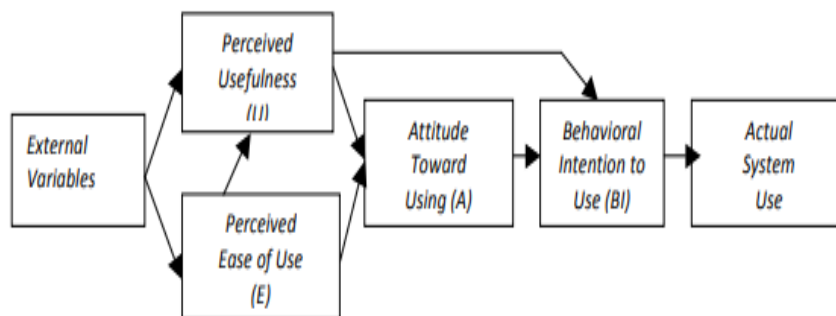
Figure 1. Technology Acceptance Model

TAM has been recognized as a effective demonstrate for clarifying and foreseeing person acknowledgment of technology. Technology Acceptance Model (TAM) predicting acknowledgment of utilize of innovation based on the impact of two cognitive variables, specifically seen convenience and seen ease of utilize. TAM embraces a chain of causes a result of convictions, demeanors, eagerly, and behaviors. A model is a representation of an object, thing, or ideas in another form with its entity.

2.3 Previous research Technology Acceptance Model and e-learning

Electronic education and learning is one of humanity's achievements that has profoundly influenced the world. To test the acceptance of e-learning technology carried out by English teachers and students based on the technology acceptance model (TAM) (Moghaddam,2012). Previous studies have used information technology adoption theories such as the Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT), Unified Theory of Acceptance and Use of Technology (UTAUT) and the De Lone & McLean model to explore e-learning user behavior by introducing an integrated model. TAM and SI success models to explore the effects of quality features, perceived ease of use, perceived usefulness on user intentions and satisfaction and their effects on e-learning outcomes (Tarhini,2013).

In the Information Systems (IS) literature, models such as the Technology Acceptance Model (TAM) have been used to explore empirically the determinants of technology acceptance and a number of studies have successfully extended their application to the context of e-learning (Alshare,2011)),(Hu.,2012),(Sharma,2014) A theoretical framework based on the Technology Acceptance Model (TAM) could examine the influence of individual levels on the acceptance of e-learning tools by students in Lebanon (Tarhini,2013). Another study also tested the acceptance of e-learning technology carried out by English teachers and students based on the technology acceptance model (TAM) and recommended that in future studies, the individual, social and organizational factors that affect the acceptability of E-Learning are further investigated (Moghaddam,2012). The modified TAM was introduced as a theory that establishes two main beliefs. The first belief is in the perceived usefulness and perceived ease of use while the second belief is in the user's attitude, intention and actual system use (Inayatulloh, 2020), (Inayatulloh,2021).

2.4 The role of teachers in e-learning

Online learning, modifications the way instructing duties are performed. Building on past investigate, proposed three categories for online teachers' parts to guarantee educating nearness: directions design and organization, encouraging talk, and coordinate instruction. Instructing nearness is defined as 'the strategy, help, and organize instruction of reasoning and social practices for the cause of gathering by and by important and instructively helpful education results (Cheok,2015). Investigate has found that teaching nearness may be a critical indicator of students' discernments of learning, fulfillment (Anderson,20011). In spite of the fact that educating nearness is measured to be what the instructor does to form a communal of request with social and perceptive nearness, all members inside the online education atmosphere can also contribute to teaching activities.

3. Method

Figure 2 shows the research process. Data and information were collected through observations in several schools where interviews were conducted with school management and teachers about the application of e-learning. School management regulations require teachers to be directly involved in the teaching and learning process using e-learning.

School management has built an e-learning system whose construction involves teachers so that in its implementation the teacher is easier to use. School management understands the condition of teachers who have a variety of abilities to adopt information technology in the context of this research, namely the ability to adopt e-learning to support the learning process at school. Therefore, school management conducts intensive training so that teachers can use e-learning to its full potential. Difficulty adopting e-learning usually occurs in older teachers who have difficulty using e-learning even though they have attended e-learning training.

To anticipate these obstacles, school management advises teachers who have difficulty holding and participating in collaborative learning with teachers who already understand e-learning by practicing learning activities in schools.
This method is quite effective because fellow teachers can communicate more intensively so that technical problems that are usually faced can be resolved by means of simulations. And if you still don't understand about the use of e-learning, the teacher tries to use independent learning at home with family help which can help improve the teacher's ability to use e-learning.

The fact is that there are conditions where there are some elderly teachers who cannot use e-learning even though they have attended training and have collaborated on learning.

In the end, if this step does not help teachers understand e-learning, then the final step is outsourcing, which means using the services of other people to help teachers use e-learning.
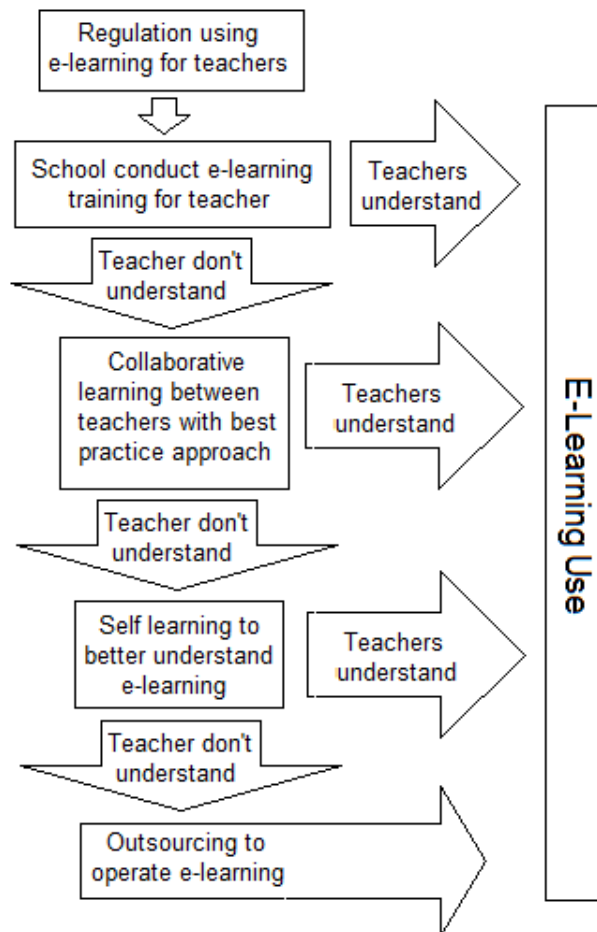
Figure 2. Research method

4. Results and Discussion
Figure 3 describes the model generated from this research where based on observations and interviews with several school management and teachers there are 3 external variables that affect the use of e-learning by teachers which are external variables of TAM, namely:
  i. E-learning training organized by school management to improve the ability of teachers to use e-learning where from the training will get the use and ease of using e-learning (Rahmi,2020),(Barakhsanova,2017),(Hofmeister, 2020)

ii. If e-learning training does not increase teacher knowledge about the use of e-learning, the teacher will collaborate on learning with teachers who already understand e-learning. This step is more effective in increasing teacher knowledge about e-learning because it uses a best practice approach, meaning that teachers who don't understand will be taught step by step all the modules in the e-learning system.(Chong,2012),(Le,2018),(Hirsh,2019)

iii. Self-learning is the next step to understand the system

iv. If the second step also cannot increase the knowledge of the teacher, usually teachers with old age, then the teacher will use outsourcing to carry out learning activities with e-learning (Romero,2019).
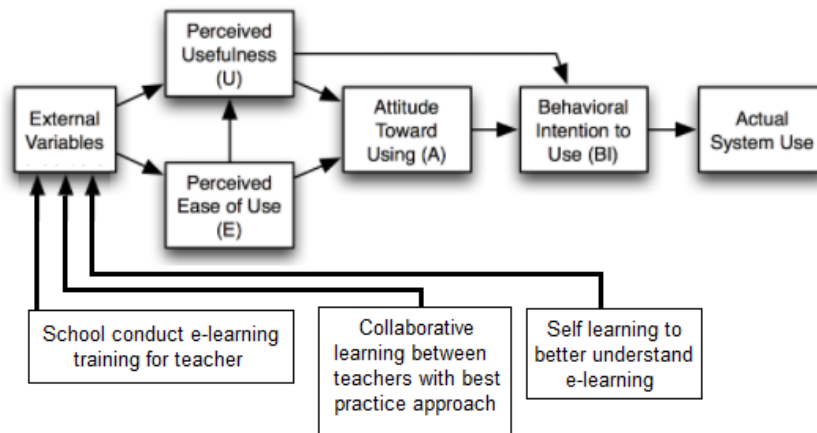

Figure 3. Extended TAM for e-learning in school

5.Conclusion

The development of the TAM model as a solution to the problem of using e-learning by teachers in schools shows that there are factors that can be used to illustrate to teachers that e-learning is easy to use and useful to support learning activities. The resulting solution can be implemented because the solution was generated from discussions with teachers who have problems with e-learning.

References

Alshare, K. A., Freeze, R. D., Lane, P. L., & Wen, H. JThe impacts of system and human factors on online learning systems use and learner satisfaction. Decision Sciences Journal of Innovative Education, 9(3), 437-461, 2011.

Anderson, T., Rourke, L., Garrison, D., & Archer, W. Assessing teaching presence in a computer conferencing context. Journal of Asynchronous Learning Networks, 5(2), 1–17, 2001.

Barakhsanova, E. A., Vlasova, E. Z., Golikov, A. I., Kuzin, Z. S., Prokopyev, M. S., & Burnachov, A. E. Peculiarities of quality management of teachers'e-learning training in the Arctic regions. Revista Espacios, 38(55) , 2017.

Cheok, M. L., & Wong, S. L. Predictors of e-learning satisfaction in teaching and learning for school teachers: A literature review. International Journal of Instruction, 8(1), 75-90, 2015.

Chong, W. H., & Kong, C. A. Teacher collaborative learning and teacher self-efficacy: The case of lesson study. The journal of experimental education, 80(3), 263-283. 2012.

Clark, R.C. & Mayer, R.E. E-learning and the science of instruction: proven guidelines for consumers and designers of multimedia learning, second edition.San Francisco: John Wiley & Sons, Inc. 2008.

Davis, F. D. "Perceived usefulness, perceived ease of use, and user acceptance of information technology", MIS Quarterly, 13 (3): 319–340, 1989.

Dessta Putra Wijaya, Implementation Of E-Learning In SMP Negeri 10 Yogyakarta , Education Policy Study Programdepartment Of Philosophy And Sociology Of Education Faculty Of Science Education Yogyakarta State University , Thesis April 2015

H., Janssen, J., & Wubbels, T. Collaborative learning practices: teacher and student perceived obstacles to effective student collaboration. Cambridge Journal of Education, 48(1), 103-122, 2018.

Hirsh, Å., & Segolsson, M. Enabling teacher-driven school-development and collaborative learning: An activity theory-based study of leadership as an overarching practice. Educational Management Administration & Leadership, 47(3), 400-420, 2019.

Hofmeister, C., & Pilz, MUsing E-Learning to Deliver In-Service Teacher Training in the Vocational Education Sector: Perception and Acceptance in Poland, Italy and Germany. Education Sciences, 10(7), 182, 2020.

Hu, P. J. H., & Hui, WExamining the role of learning engagement in technology-mediated learning and its effects on learning effectiveness and satisfaction. Decision support systems, 53(4), 782-792, 2012.

Inayatulloh Technology acceptance model (TAM) for the implementation of knowledge acquired model for SME. Proceedings of 2020 International Conference on Information Management and Technology, ICIMTech 2020, 2020, pp. 767–770, 2020.

Inayatulloh. E-marketplace issues for SMEs: the Technology Acceptance Model approach, Proceedings of the International Conference on Industrial Engineering and Operations Management, Rome, Italy ,Aug 2021.

Ismail, F. Infrastructure for the use of ICT in education, and distance education. A working paper submitted to the regional symposium on the recruitment of information and communication technologies in education, and distance educationin Damascus, (15-17July 2003).

Malalla, J. N. Psycho-Socio dynamics of E-learning: investigating student's perception of efficacy in asynchronous computer generated learning. University ofBradford, UK. , 2004.

Moghaddam Zanjani, F. V., & Ramazani, M. Investigation of e-learning acceptance in teaching English language based on TAM Model. ARPN Journal of Systems and Software, 2(11), 2012.

Perwira Yustika, Gaung & Subagyo, Adam & Iswati, Sri. (Masalah Yang Dihadapi Dunia Pendidikan Dengan Tutorial Online: Sebuah Short Review. Tadbir : Jurnal Studi Manajemen Pendidikan. 3. 187, 2019.

Rahmi, U., Hidayati, A., & Azrul, AE-Learning Training To Integrate ICT In Learning For High School Teachers. Panrita Abdi-Journal of Community Service, 4(1), 34-41, 2020.

Romero, M., & Sandefur, J. Beyond short-term learning gains: The impact of outsourcing schools in Liberia after three years (No. 521). Center for Global Development, 2019.

Ross, S. M., & Morrison, G. R. In search ofa happy medium in instructional technology research: Issues concerning external validity,media replications, and learner control. Educational Technology, Research and Development,37, 19–33, 1989.

Sharma, S. K., Chandel, J. K., & Govindaluri, S. M. Students' acceptance and satisfaction of learning through course websites. Education, Business and Society: Contemporary Middle Eastern Issues, 2014.

Sonwalkar, N. A new methodology for evaluation: the pedagogical rating ofonline courses. Syllabus, 15 (6), 18-21. ,2002.

Tarhini, A., Hone, K. S., & Liu, X. Factors affecting students' acceptance of e-learning environments in developing countries: a structural equation modeling approach, 2013.

Tarhini, A., Hone, K., Liu, X., & Tarhini, T. Examining the moderating effect of individual-level cultural values on users' acceptance of E-learning in developing countries: a structural equation modeling of an extended technology acceptance model. Interactive Learning Environments, 25(3), 306-328, 2017.

Wydra, F. T. Learner controlled instruction. Englewood Cliffs, NJ: Educational Technology Publications, 1980.

Biography

Inayatulloh is a candidate doctor at Bina Nusanatara University's Doctor of Computer Science. Since 2000, Inayatulloh has been a lecturer at several universities and colleges in Indonesia such as Bina Nusnantara University, Indonusa University, State Islamic University, Archipelago Economics College and is currently a lecturer at Bina Nusantara University in the school of information system. Scopus indexed publications have been produced with topics related to information systems such as e-learning, e-SCM, e-CRM. E-government and others