

Learning Process Using Edmodo: TRI and TAM Theories (Students of STIE Malangkuçęwara, East Java, Indonesia)



Eko Sudjawoto¹, Agussalim Andriansyah², Didik Priyo Sugiharto³

^{1, 2, 3}STIE Malangkuçęwara, Malang, East Java, Indonesia

ABSTRACT: E-Learning is one of technology applications that uses in education. E-Learning can be used as a method of learning process which can be adjusted with the limitation of lectures and students. E-Learning is also an important technology to improve human resource quality in education institution. One of the factors that determined the successfulness of technology adoption is the acceptance by the users. The purpose of this research is to investigate the influence of Technology Readiness Index (TRI) and Technology Acceptance Model toward the intention of using Edmodo by undergraduate students in STIE Malangkuçęwara Malang. Data were collected from 165 students and analyzed used linear regressing. Result of this study showed that perceived usefulness and perceived ease of used variables influenced the intention of using Edmodo in STIE Malangkuçęwara Malang.

KEYWORDS: Technology Readiness Index, Technology Acceptance Model, Edmodo,

1. INTRODUCTION

Recently, the advancement of technology has improved and given a lot of new opportunities in the field studies. Technology enables to give a system that hasn't given by conventional system (Castro, 2004). Together with the advancement technology for individual and business, there are also the developments of technology that can be used for learning process (Adobe Systems Incorporated, 2008). E-Learning is one result of the technology advancements in education. E-Learning uses information technology and communication to enable online learning process (Arkorful & Abaidoo, 2014). E-Learning does not change the traditional learning process; e-Learning only diversifies and completed the traditional learning process (Osepashvili).

The purpose of implementation E-Learning in education is to improve the quality of learning process which then can be affected the improving the quality of human resource. Davis (1996) stated that the benefit of technology cannot be maximized if it is not accepted by the users. The user acceptance often becomes an important factor for the successfulness of the implementation of new technology.

Edmodo is one of E-Learning systems that facilitate lectures and students to communicate, to collaborate and to consult. Edmodo enables lectures to give and distribute lecturing materials, quiz, assignments and other communication activities with their students and even with the parents of the students. Based on the researches of Lin, Shih, and Sher (2007), Walczuch, Lemmink, Streukens (2007), Esen and Erdogmus (2014), Shin and Lee (2014), and Godoe and Johansen (2012), this research combined two theories, they are: Technology Readiness Index that developed by Parasuraman (2000) and Technology Acceptance Model that developed by Davis (1989) to identified and measured the aspects that influence the intention used of Edmodo in learning process in STIE Malangkuçęwara Malang.

2. LITERATURE REVIEW

2.1 Technology Acceptance Model

Technology Acceptance Model (TAM) is a theory adopted from Theory of Reasoned Action (TRA). In the TAM theory, the behavior of acceptance and implement technology can be seen by user motivation which is influenced directly by external stimulation (Chuttur, 2009). The external stimulation in this case is such as the facilitations and the ability of the technology itself. In the TAM theory, user motivation is influenced by two factors, those are: perceived usefulness and perceived ease of use.

Perceived Usefulness can be defined as user perception toward the ability of the system to increase the work performance (Davis, 1989). The indicators of perceived Usefulness are: work more quickly, job performance, increase productivity, effectiveness, makes job easier, and useful. Perceived Ease of Use can be defined as subjective opinion of users toward how hard the effort to use the system. This definition is come from the word "ease" means free from hard work and difficulties (Davis, 1989). The indicators of perceived ease of use are: ease to learn, controllable, clear and understandable, flexible, easy to become skillful, and easy to use.

2.2 Technology Readiness Index

Technology Readiness is the tendency of a person to accept and implement the technology both to reach his/her objectives in daily life and his/her goals in organization (Parasuraman, 2014). TRI classified the users in four groups based on the characteristics of the users. The characteristics of the users are: optimism, innovativeness, discomfort, and insecurity. Optimism and innovativeness are motivators of the Technology Readiness, whereas discomfort and insecurity are inhibitors of the Technology Readiness.

Optimism can be defined as positive view toward technology and believe that technology able to increase control, flexibilities, and efficiency in life. Innovativeness is the tendentious to use new technology. Discomfort is negative perception which is user feel cannot control and busy with the technology. Finally, insecurity is feeling unbelief to the ability of the technology and worry about its consequences.

2.3 Edmodo

Edmodo is learning platform based on social media for teachers, students, and parents. Edmodo is developed first time by Nic Borg and Jeff O'hara at the end of 2008. Edmodo can be said as e-learning program which implement learning system that easy, efficient, and more enjoyable. Edmodo is very helpful in learning process. Edmodo gives easy way and secure to develop virtual class as it in the school.

Edmodo has pages that almost the same with the pages in Facebook. Using Edmodo, teachers/lecturers can send grade, assignment, and also quiz for their students easier. Edmodo has several benefits in the learning process. These benefits are:

- Edmodo can be used as a place for communication and discussion that are very efficient for teachers/lecturers.
- Edmodo enables students to interact and discuss with other students with directly monitored by their teacher
- Edmodo makes communication among teacher, students, and parents easily.
- Edmodo can be as an appropriate infrastructure for exam and quiz.
- Edmodo can enable teachers/lectures give learning material such as questions, picture, learning video to the students very easily.
- Edmodo enables parents to monitor learning activities of their children easily.
- Edmodo enables teachers/lecturers gives assignments and exercise to their students anywhere and anytime (<http://nesabamedia.com/pengertian-manfaat-dan-fitur-edmodo/>)

There are many features that offered by Edmodo to support learning process. Bellows are features in Edmodo:

1. Polling
Polling is an Edmodo's feature that only can be used by teachers/lecturers. This feature is usually used by teachers/lecturers to know the students' responses about special thing.
2. Grade book
This feature looks like the students' grade. Using this feature, teachers/lecturers can give grade to the students manually or automatically. This feature enables a teacher or a lecture to manage the grade of all the students. In the grade book feature, teachers/lecturers can fully access, but students can only see the grade recapitulation in graphic and direct grading.
3. Quiz
Quiz feature only can be made by teachers, whereas students don't have access to made quiz. The students only can do the quiz given by the teachers or lecturers. Quiz used by teachers/lecturers to give online evaluation to the students in the form of multiple choices, fill in the blanks, and subjective questions.
4. File and Links
This feature has functions to send note with file attachment and link. The files usually have extensions .doc, .ppt, .xls, .pdf, etc.
5. Library
This feature can be used by teachers/lecturers to upload learning materials, such as presentation, picture, video, references, etc. Library also has function as a place to put many files and links that owned by teachers/lecturers and students
6. Assignment
Assignment feature is used by teachers/lecturers to give online assignments to the students. This feature is completed by deadline, attach file that enables students to send assignment directly to the teachers or lecturers in document file (pdf, doc, xls, ppt), and with "Turn in" bottom that has function to mark that students has finished their assignments.
7. Award Badge
This feature is used for teachers/lecturers in giving award to their students.
8. Parent Code

Learning Process Using Edmodo: TRI and TAM Theories (Students of STIE Malangkuçewara, East Java, Indonesia)

This feature can be used by parents to monitor the learning activities of their children. To have this code, parents can click their children class name or group in Edmodo or the code can be asked to the teacher or lecturer directly (<http://nesabamedia.com/pengertian-manfaat-dan-fitur-edmodo>).

Based on the features, Edmodo is the appropriate program for online learning process. Besides, Edmodo also can make learning process activities among teachers/lecturers and students easier.

2.4 Research Hypothesis

Walzuch, Lemmink, and Streukens (2007) showed that optimism variable has strong influence and positive toward perceived usefulness and perceived ease of use. Research conducted by Godoe and Johansen (2012) found that optimism has significant and positive influence toward cognitive dimension in TAM. Parasuraman (2014) stated that optimism is positive view toward technology and beliefs that technology can increase control, flexibility, and efficiency in daily life and as a motivator in technology readiness.

Based on the result of the researches above, the hypotheses for this research are:

H1 : Optimism has positive influence toward perceived usefulness.

H2 : Optimism has positive influence toward perceived ease of use.

Walzuch, Lemmink, and Streukens (2007) also found that innovativeness has strong and positive influence toward perceived ease of use, but it has negative influenced toward perceived usefulness. Godoe and Johansen (2012) have the same result with Walzuch, Lemmink, and Streukens (2007). They found that innovativeness has strong and positive impact toward perceived ease of use and negative influenced toward perceived usefulness. Parasuraman (2014) stated that innovativeness tend to be a pioneer and leader in technology and also as a motivator in technology readiness.

Based on the results above, the hypotheses of this research are:

H3 : Innovativeness has negative influence toward perceived usefulness

H4 : Innovativeness has positive influence toward perceived ease of use

In the research that conducted by Esen and Erdogmus (2014), it is found that discomfort has negative influence toward perceived usefulness and perceived ease of use. Walzuch, Lemmink, and Streukens (2007) found that discomfort has negative impact toward perceived ease of use. Godoe and Johansen (2012) also found that discomfort has negative impact on perceived usefulness. Parasutaman (2014) stated that discomfort is feeling of less control and hard work toward technology.

Based on the researches above, the hypotheses of this research are:

H5 : Discomfort has negative impact toward perceived usefulness.

H6 : Discomfort has negative impact toward perceived ease of use.

Walzuch, Lemmink, and Streukens (2007) found that insecurity has negative influence toward perceived ease of use and perceived usefulness. Esen dan Erdogmus (2014) also found that insecurity has negative influence toward perceived ease of use.

Based on the researches, the hypotheses of this research are:

H7 : Insecurity has negative influence toward perceived usefulness.

H8 : Insecurity has negative influence toward perceived ease of use.

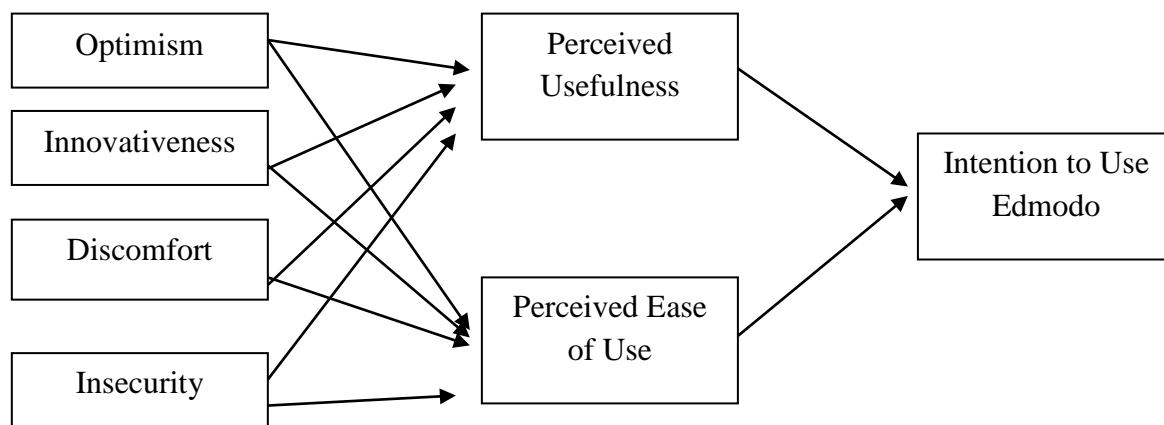
In the TAM theory, perceived usefulness and perceived ease of use have direct impact toward the intention to use technology. Research conducted by Lin, Shih, and Sher (2007) also stated that perceived usefulness is an important factor in the intention to use technology, whereas perceived ease of use also has direct influence toward intention to use technology.

Based on the researches, the hypotheses of this research are:

H9 : Perceived Usefulness has positive and significant influence toward intention to use technology.

H10 : Perceived Ease of Use has positif and significant influence toward intention to use technology.

3. RESEARCH MODEL



4. RESEARCH METHOD

This research is quantitative research to examine the hypothesis associative. Data were collected using questionnaires and data were analyzed using linear regression. Population of this research is all students of STIE Malangkuçecwara active in the year 2020. This research using random sampling with the number of sampling is 165 students.

The Technology Readiness Index is measured by four dimensions that consist of optimism, innovativeness, discomfort, and insecurity. The Technology Acceptance Model consists of six statements to measure perceived usefulness and perceived ease of use. In this research also have three statements to measure behavior intention to use Edmodo.

Validity test for this research used Pearson Correlation technique with 5% significance. Result for this test showed that the value of r all instruments in the questionnaires higher than r table, therefore all instruments are valid. Reliability test for this research used Cronbach’s Alpha. The questionnaires are reliable if the value of Cronbach’s Alpha > 0.60. The result of this test showed that innovativeness and discomfort variables have value less than 0.60, therefore the questionnaires for these variables are not reliable. To increase the value of Cronbach’s Alpha, several answers from the respondents are eliminated and it will be tested again. The reliability test for second test showed that 165 questionnaires have value higher than 0.60.

5. FINDINGS AND DISCUSSIONS

Examining the hypothesis for this research is using T test. T test is used to examine the partial influence of Technology Readiness (optimism, innovativeness, discomfort, and insecurity) toward perceived usefulness and perceived ease of use, and also to test that perceived usefulness and perceived ease of use influence the intention to use Edmodo partially. Statistic result for 10 hypothesis for this research can be shown in table 1 below:

Table 1. Result of T test

Hypothesis	T Table	T Value	Coefficient	Result
H1	1.9749	3.755	0.610	Accepted
H2	1.9749	3.319	0.388	Accepted
H3	1.9749	0.847	0.132	Rejected
H4	1.9749	2.557	0.287	Accepted
H5	1.9749	-0.029	-0.004	Rejected
H6	1.9749	-1.717	-0.166	Rejected
H7	1.9749	1.414	0.200	Rejected
H8	1.9749	2.577	0.263	Accepted
H9	1.97462	5.281	0.204	Accepted
H10	1.97462	4.342	0.227	Accepted

Based on table 1 above, it can be seen that hypothesis 1 (optimism has positive influence toward perceived usefulness) is accepted. This hypothesis accepted because optimism has t value 3.755 higher than t table (1.9749) with significance 0.000 and regression coefficient 0.610. This statistic result means that Optimism has positive and significant influence toward perceived usefulness about 61%. Hypothesis 2 in this research is also accepted. Optimism has positive and significant influence toward perceived ease of use, because it has t value 3.319 higher than t table with value of significance 0.001. Coefficient regression of this hypothesis is 0.388; it means that optimism variable influences perceived ease of use only 38.8%.

Based on the T test result, hypothesis 3 for this research is rejected. Hypothesis 3, Innovativeness has negative influence toward perceived usefulness is rejected because it has T value (0.847) less than T table (1.9749) and its regression coefficient is 0.132. This result means that innovativeness doesn’t influence perceived usefulness. Innovativeness doesn’t influence perceived usefulness, but it influences perceived ease of use (hypothesis 4).

Hypothesis 5, 6, and 7 are rejected. T values of this hypothesis are less than T table. Therefore it can be concluded that discomfort doesn’t influence both perceived usefulness and perceived ease of use. Insecurity variable also doesn’t influence perceived usefulness. Hypothesis 8 (Insecurity has negative influence toward perceived ease of use) has T value higher than T table with regression coefficient 0.263. This statistic result means that hypothesis 8 accepted and has meaning that insecurity influences perceived ease of use. Finally, hypothesis 9 and 10 are accepted in this research, because they have T value higher than T table. Both hypotheses have significance values 0.000. This result means that perceived usefulness and perceived ease of use significantly influence intention use of Edmodo.

This research found that optimism significantly influences perceived usefulness and perceived ease of use. This result can be interpreted that students of STIE Malangkuçecwara College who are very optimist tend to use Edmodo intensively because Edmodo makes them easier in doing the learning process activities and also the Edmodo is very easy to operate. Innovativeness significantly influences perceived ease of use but doesn’t influence perceived usefulness. This means that students STIE

Learning Process Using Edmodo: TRI and TAM Theories (Students of STIE Malangkuçewara, East Java, Indonesia)

Malangkuçewara who are the respondent of this research feel that the features of Edmodo is very innovative and easy to operate but its innovation doesn't give them more benefits. The influence of innovativeness on ease of use is consistent with research findings of Walzuch et al (2007) and Godoe and Johansen (2012).

Discomfort doesn't influence both perceived usefulness and perceived ease of use. These findings mean that students do not use features in Edmodo maximally. This is because students only use Edmodo for submitting assignments and distribute learning materials and they are reluctant to use other features. Insecurity influences perceived usefulness but doesn't influence perceived ease of use. In the case insecurity doesn't influence perceived ease of use, it is consistent with the finding of Shin and Lee (2014) research, which stated that the more secure a system, the more needed authentication that should be passed by user and this will reduce the level ease of use of the system.

Perceived usefulness and perceived ease of use have positive and significant influence toward the intention use of Edmodo for students STIE Malangkuçewara Malang. This finding is consistent with Davis (1989) Technology Acceptance Theory. In the theory, it is stated that perceived usefulness and perceived ease of use are factors in determining whether to use the technology or not. If the students feel they have more benefits in using Edmodo, they will be more intent to use the Edmodo.

6. CONCLUSION

Edmodo is a program that used lecturers and students STIE Malangkuçewara as media for learning process. The purpose of this research is to investigate the intention of using Edmodo for the students. The theories that used in this research are Technology Readiness Index and Technology Acceptance Model. Using those theories, this research examined the influence of optimism, innovativeness, insecurity, and discomfort toward perceived usefulness and perceived ease of use, and also their impact on the intention of use Edmodo. This research found that not all variables influence the perceived usefulness and perceived ease of use. Discomfort doesn't influence perceived usefulness and perceived ease of use. Insecurity has positive and significant influence toward perceived ease of use, but it doesn't influence perceived usefulness. Finally,, perceived usefulness and perceived ease of use influence the intention of use Edmodo in STIE Malangkuçewara Malang. The findings of this research are expected to contribute to STIE Malangkuçewara management in making decision about implementing Information Technology.

REFERENCES

- 1) Adobe Systems Incorporated. (2008). Technology in Education. USA.
- 2) Arkorful, V., Abaidoo, N. (2014).The Role of E-Learning, The Advantages and Disadvantages of Its Adoption in Higher Education. *International Journal of Education and Research*, 2(12), 397-410.
- 3) Castro, C. D. M.(2004).Are New Technologies Better Technologies ? For Whom?. Dalam D.W.Chapman,L.O.Mahick, Adapting Technology for School Improvement : a Global Perspective, 39-54.International Institute for Educational Planning.
- 4) Chuttur, M. (2009). Overview of Technology Acceptance Model: Origins, development, and Future Direction. *Sprout:Working Papers on Information Systems*.
- 5) Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology, *MIS Quarterly*, 13(3), 319-340.
- 6) Davis, F. D. (1993). User Acceptance of information Technology: System Characteristics, User Perceptions, and Behavioral Impacts. *Man-Machine Studies*, 38, 475-487.
- 7) Esen, M., Erdogmus, N. (2014). Effects of Technology Readiness on Technology Acceptance in e- Mediating Role of Perceived Usefulness. *The Journal of Knowledge Economy & Knowledge Management*, 9(Spring), 7-21.
- 8) Godoe, P., Johansen, T. S. (2012). Understanding Adoption of New Technologies: Technology Readiness And Technology Acceptance as an Integrated Concept. *Journal of European Psychology Student*, 3, 38-52.
- 9) Ghozali, I. (2006).Aplikasi Analisis Multivariate Dengan Program SPSS.Cetakan IV.Badan Penerbit Universitas Diponegoro. Semarang.
- 10) Osepashvili, D.The Role of E-Learning in Modern Media Education.Javakhishvili Tbilisi State University.Georgia.
- 11) Parasuraman, A., Colby, C. (2014). An Updated and Streamlined Technology Readiness Index. *Journal of Service Research*, 1-16.
- 12) Shih, H.Y.,Sher, P.J., Lin, C.H.(2007). Integrating Technology Readiness Into Technology Acceptance: The TRAM Model. *Psychology and Marketing*, 24(7), 641-657.
- 13) Shin, S., Lee, W.J.(2014).The Effects of Technology Readiness and Technology Acceptance On NFC Mobile Payment Services in Korea.*The Journal of Applied Business Research*, 30(6), 1615-1625.
- 14) Venkantesh, V., Goyal, S. (2010). Expectation Disconfirmation and Technology Adoption : Polynomial Modeling and Response Surface Analysis.*MIS Quarterly*, 34(2),281-303
- 15) Walzuch, R., Lemmink, J., Streukens, S. (2007).The Effect of Service Employee Technology Readiness on Technology Acceptance. *Information & Management*, 44, 206-215.