

TAM and Game-based Learning Platform for Online Education in Schools

Enggal Sriwardiningsih

Management Department, Business School-Undergraduate

Bina Nusantara University, Jakarta, Indonesia

enggal@binus.ac.id

Abstract

The covid-19 has accelerated the use of technology in education, which was previously only a lesson in class. Information and network infrastructure are related to the online education system. This reason replaces the usual face-to-face learning process. to date, and only a few researchers have explicitly built attitudes towards online education, especially implementation in elementary, junior high, and high schools. This research is essential and a particular case because they are still at an early age and adolescents whose mental maturity level is still unstable and independent like university students. The author proposes a Technology Acceptance Model (TAM) model as technology base learning for elementary to middle school children combined with a game-based learning platform to support children's engagement. This model consists of several variables: Perceive valuable content, Perceived practical learning, perceive ease to use, attitude toward using online learning, trust, behavioral intention to use online, and perceived valuable game Kahoot as moderating variables. Children need trust and believe to make easier engagement and interactive communication with their teachers. This study looked at the perceived users of technology base learning and game-based learning users. They see the ability to learn engagement games to be happier and more enthusiastic in the educational process.

Keywords

TAM, Game-based Learning, Online-Education

1. Introduction

Children need education, but the conditions of the Covid-19 pandemic have prevented them from attending school as usual(Web 2020). Education must deliver regardless of the conditions. This condition has accelerated the use of technology in education for young children, which previously only served as classroom learning. Children usually need trust and trust in their teachers to follow their teachings(Ritanjali, Ranjan, and Kumar 2020). In terms of the face-to-face learning process, it is easier to work than in online learning. Teachers can adapt and communicate with children through fun activities and interactivity when they deliver content face-to-face, making it difficult online. New problems arise related to this online, namely how the acceptance of subject content goes well and the involvement of children to be happy with technology-based learning. The comfortable of children is not easy to happen. Children need motivation, encouragement, and support in learning in subject schools (Fang et al. 2008) because they have not become independent individuals like mature students in college(Engwall 2018). For the most part, the development of information technology is driving value online and accepted gradually through university teaching, but it may be somewhat different for young students in primary, junior high, and high schools. Luckily for them, the use of the internet and the worldwide web allows students to study subject content and interact with their teachers using a TAM-based technology learning platform (Fang et al. 2008). The independent or adult age can accept online learning as usual, generally at the university level. The results of literature searches, mainly primary to secondary school children, are very few, especially in children in Indonesia, whose educational and technological infrastructure is generally not as good as in developed countries.

1.1 Objectives

The research objective is application of model TAM (fang, 2012) according to perceive of students in elementary, junior, and senior high school, this is the uniqueness of this research. It is very important to know the

perceive of valuable contents, perceived useful learning, perceive ease to use, attitude toward using online education, behavioral intention to use online. It is very important to know of valuable perceive students using technology base on learning in from of their daily study at home. Knowing their behavioral intentions to use online learning zooms, such as zoom, google meetings, and video calls, is very important for future education. The other unique of this research is we dig how works students can enjoy study during online with their teachers, we put a Kahoot as a game base learning during learning that the teacher can more engagement with their teacher with fun and effective in understanding the subject. Variables perceive of a game base on learning should be work for support enthusiasm to interactive and fun with their teacher and this variable as moderating variable. The aim of this model is to find out the extend the TAM as technology base of learning in specific area elementary, junior dan high school. We proposed some research hypotheses such as:

Hypothesis 1. Perceived ease of use the online platform is positively related to perceived accept the contents.

Hypothesis 2. Perceived ease of use the online platform is positively related to attitudes toward using online learning.

Hypothesis 3. Perceived accept the contents is positively related to attitudes toward using online learning.

Hypothesis 4. Game learning is positively related to attitudes toward using online learning.

Hypothesis 6. Attitudes toward using online learning is positively related to satisfaction online learning.

Hypothesis 7. Attitudes toward using online learning is positively related to behavioral intentions to use online learning.

Hypothesis 8. Game learning is moderating between attitudes toward using online learning and satisfaction online leaning.

Hypothesis 9. Game learning is moderating between attitudes toward using online learning and behavioral intentions to use online.

Hypothesis 10. Perceive accept the contents and attitude toward using online learning are positive influence intervene between Perceive ease to use the online platform and behavioral intention to use online learning.

Hypothesis 11. Attitude toward using online learning is positive influence intervene between perceive ease to use the online platform and behavioral intention to use online learning.

Hypothesis 12. Attitude toward using online learning is positive influence intervene between perceive ease to use the online platform and satisfaction online learning

2. Literature Review

2.1 The Technology Acceptance Model (TAM)

TAM by Davis in 1989 explained the intent of the people in using IT (Fang et al. 2008). Davis found that perceived usefulness and perceived ease of use indicated acceptance of human information technology. He believed that perceived usefulness was the degree of personal trust in using a particular information system. This information system would enhance his or her job performance. Perceived ease of use was how a person thought using a specific approach that will be easy and light energy to do. Attitudes toward the use and behavioral intentions to use determined attitudes by the human benefit beliefs and behavioral intention to use system led to actual system use. Some researchers followed his model and modified his model. They found that the ease of use or usefulness directly influenced behavioral intentions to use the information system. Some researchers added new additional factors through attitudes to use (Lederer et al. 2000). Furthermore, some researchers permitted their study to ease use and usefulness directly on behavioral intentions using information technology. The context study is an online learning and the actual system use using the TAM model in school. Previous researchers using behavioral purposes to use could lead the actual system use. He proved it was a self-reported measure employing IT. Some researchers found the impact of ease of use or usefulness directly on behavioral intentions to use (Hsu and Lu 2004). Some researchers considered adding new additional relationship factors to attitudes towards use (Lederer et al. 2000). Hence, to maintain the instrument briefly and permit the study of perceived ease of use and perceived usefulness to attitudes towards use. The current research likewise studied the direct effect of ease of use and effectiveness on behavioral intentions to use; however, in the context of online learning in schools.

2.2. Games Base Learning

Technology is being progressively assimilated into teaching ecosystems in view of developing students 'engagement and motivation (Licorish et al. 2018). This different way of learning change over practices, recommends new chances to let the students form their education behaviors, utilizing their own approaches according to what they know from their school assets and limitations. This method of self-regulating their interest (Marty and Carron 2011) can be supported in such conditions. Technology is being increasingly integrated into teaching environments in view of

enhancing school children 'engagement and motivation. In Some Way, benefit of object is very difficult to manage and understand. The tracing activity is a correct way of reflecting in depth details of the activity and of showing precise signals for the metacognition objective teacher, for the pedagogical plan (Marty and Carron 2011) and even for the researcher studying for developing practices (Wang and Tahir 2020). Studying with Computer-Based Learning Conditions changes behaviors, mainly for teachers. Additionally, Kahoot is a game tool to motivate students in online learning activities(Wang and Tahir 2020). Therefore, to increase the validity of the technology acceptance model, it was necessary to explore further the nature and specific influences of the game for education, such as Kahoot at schools and online education context factors that may alter the student elementary, junior, and senior high schools can acceptance.

3. Methods

Instrument Validation and Instruments

Partial Least-Squares (Sarstedt et al. 2014) using Smart PLS 3.0 (Francis 2017) will predict all hypotheses. Research model Figure 1 illustrated the concept model from modification TAM for young elementary and junior high school students. The concept model wants to assert that online education is a function of perceived usefulness through course content, learning activities and game Kahoot of online education, ease of use of online learning, and attitudes toward online education. Intentions were the extent to which the students would like to study via online education in the future. Moreover, perceived usefulness is how students believed that online education would fulfill the purpose of the study. Then, perceived ease-of-use was the extent to which the students thought online education was more accessible and effortless. We use the basic assumption is that perceived usefulness in online education would positively affect the young human attitudes toward using online learning and their behavioral intentions to study online learning. Additionally, Kahoot is a game tool to motivate students in online learning activities. Therefore, to increase the validity of the technology acceptance model, it was necessary to explore further the nature and specific influences of the game for education, such as Kahoot at schools and online education context factors that may alter the student elementary and junior can acceptance. Figure 1 showed the concept model for the proposed study supported by quantitative data.

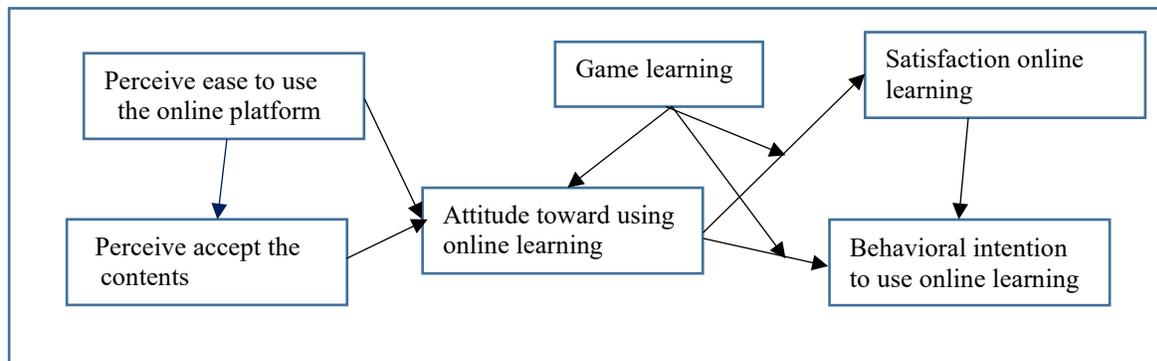


Figure 1. Proposed Research Model TAM for Schools

4. Data Collection

We find the phenomena by an observation and forum discussion by some students. It purposed to identify the problem related to implementing the model online education at level elementary, junior, and senior high school.

Data collection Empirical data will be collected by surveying by Google form. Subjects were students in elementary schools and junior high schools at some district in Indonesia. For elementary school, we allow his or her parents to help them answer the Goggle form. The questionnaires will adopt from the indicators concept model. The scale indicators for perceived ease of use, perceived valuable contents, perceived useful learning, perceived useful games, attitudes toward using online learning, and behavioral intentions to manage via online learning were developed from the study of Yang (Fang et al. 2008). Each item indicator measures a five-point Likert scale, ranging from disagree

strongly to agree strongly. Then research will see the internal consistency using Cronbach's α , validity, and reliability. The proposed hypotheses, data collected and analyzed using the structural equation modeling.

References

- Engwall, Lars. "Montesquieu in the University: The Governance of World-Class Institutions of Higher Education and Research." In *European Review*, 2018.
- Fang, R J et al. "The Technology Acceptance Model with Online Learning for the Principals in Elementary Schools and Junior High Schools." *Musp '08: Multimedia Systems and Signal Processing* (February 2012): 129–35, 2008.
- Francis, Ramayah;T. Chuah, "Partial Least Squares Structural Equation Modeling (PLS-SEM) Using SmartPLS 3.0." *Long Range Planning*, 2017.
- Hsu, Chin Lung, and Hsi Peng Lu, "Why Do People Play On-Line Games? An Extended TAM with Social Influences and Flow Experience." *Information and Management* 41(7): 853–68, 2004.
- Lederer, Albert L., Donna J. Maupin, Mark P. Sena, and Youlong Zhuang, "Technology Acceptance Model and the World Wide Web." *Decision Support Systems* 29(3): 269–82, 2020.
- Licorish, Sherlock A., Helen E. Owen, Ben Daniel, and Jade Li George, "Students' Perception of Kahoot!'s Influence on Teaching and Learning." *Research and Practice in Technology Enhanced Learning* 13(1): 1–23, 2018. <https://doi.org/10.1186/s41039-018-0078-8> (May 22, 2021).
- Marty, Jean Charles, and Thibault Carron, "Observation of Collaborative Activities in a Game-Based Learning Platform." *IEEE Transactions on Learning Technologies* 4(1): 98–110, 2011.
- Ritanjali, Panigrahi, Srivastava Praveen Ranjan, and Panigrahi Prabin Kumar, "Effectiveness of E-Learning: The Mediating Role of Student Engagement on Perceived Learning Effectiveness." *Information Technology & People* ahead-of-p(ahead-of-print), 2020. <https://doi.org/10.1108/ITP-07-2019-0380>
- Sarstedt, Marko et al, "Partial Least Squares Structural Equation Modeling (PLS-SEM): A Useful Tool for Family Business Researchers." *Journal of Family Business Strategy*, 2014.
- Wang, Alf Inge, and Rabail Tahir, "The Effect of Using Kahoot! For Learning – A Literature Review." *Computers and Education* 149: 103818, 2020.
- Web, Pengolala, "Pembelajaran Online Di Tengah Pandemi Covid-19, Tantangan Yang Mendewasakan", 2020. <https://pusdatin.kemdikbud.go.id/pembelajaran-online-di-tengah-pandemi-covid-19-tantangan-yang-mendewasakan/>

Biography

Enggal Sriwardiningsih is an Associate Professor in Bina Nusantara University, Jakarta, Indonesia. She earned B.S and master's degree in economics from Gadjah Mada University, Indonesia and Doctoral Research Management from Bina Nusantara University, Indonesia. She publishes some journal, conference papers and book reference.