

E-POSTER FOR MASTER THESIS DURING COVID-19 PANDEMIC: ITS EFFECTIVENESS AND USERS' PERCEIVED USEFULNESS

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Abstract.

This study was conducted in the context of joint-thesis open learning application use for masters' degree/graduate-supervisors communication. The objectives are to identify reasons for no intention of the application and e-poster template use; and to identify the significant influences of Technology Acceptance Model (TAM 3) variables on this case. The research questions---what are the reasons for the supervisors and supervisees dismissal of the application as well as its e-poster template, and secondly, how do TAM 3 variables affect their productivity in writing master thesis. The data were taken from questionnaires based on TAM 3 evaluation model, administered to 12 thesis supervisors from the Philippines and Malaysia, and 30 Indonesian supervisees. Data were analyzed using Partial Least Square Standard Equation Model (PLS-SEM). The results indicated that supervisors faced performance (PE) and effort expectations (EE) problems. The supervisees' facilitating condition (FC) is the main reason for the lack of intention to use.

Dissatisfaction of internet connection to render e-poster multimedia links, namely one of the reasons. For practical implication, stable internet connection is needed, and corrective feedback tools should be infused into the application. This research contribute constructive feedback for other graduate programs to have similar application and use e-poster presentation in their international joint thesis collaborations.

Keywords: E-poster, Master Thesis, Final oral viva, TAM3

Introduction

Every graduate students at the Universitas Ahmad Dahlan (UAD), Indonesia, is required to get the degree by research and academic publication. During the final research project, both supervisors and supervisees should have face-to-face consultation and a strong academic relationship. The graduate students should follow a residential program abroad (Malaysia & Philippine) under the program of International Joint Thesis Writing. COVID-19 pandemic, however, has suspended face-to-face consultation for almost three years and shifted into online learning due to restriction and lockdown imposed by each government. Supervisors and supervisees then conducted thesis supervision online through Facebook, WhatsApp, Zoom, Google meet, E-mail, or Webex. Nevertheless, Peni (2022) found that the quality of the supervision was still unsatisfactory due to technological barriers and one's preferences. This finding is confirmed by Radu, et al (2020) online learning made communication more complicated than face-to-face education; Sawitri (2020) found the students felt stressed; they missed personal touch with their fellow learners and teachers, Haryadi & Itah (2021). According to UNESCO (2020), the unsatisfactory advantages of these platforms can be the result of sudden and limited preparation. As the result, joint thesis application was designed in 2020 to support supervision and final viva e-poster presentation. Nevertheless, five out of fifteen supervisors do not enjoy e-poster presentation and six out of thirty supervisees do not use e-poster template given in the Joint Thesis application. This research, therefore, has two objectives: to find out their main reasons not to use the application and e-poster presentation; and to identify significant influences of Perceived Ease of Use (PEU) towards Perceived Usefulness (PU); PEU, PU, Experience, and Voluntary on Behavioral Intention of Use (BIU); and Behavioral Intention of Use (BIU) on Use Behavior. The results of this research contribute constructive feedback for other graduate programs to have similar application and use e-poster presentation in their international joint thesis collaborations

By definition, poster presentation is the presentation of research information on a series of posters that may include drawings, photographs, charts, graphs, and textual data relating to a specific subject (Meriem-Webster, 2022). Poster session is prevalent means of disseminating information or research findings at academic conferences, annual meetings, project proposal, or at any kind of events where the main goal is to educate or to inform the people including final oral thesis defense. In the theoretical level, poster presentation is used for knowledge transfer among the scientific community to present and discuss their work with other researchers in their field of interest but at the practical level the dedicated hour for the poster session is very limited. It is not uncommon for the readers to engage with hundreds or even thousands of posters either standing alone poster or presenter-companion poster. Thus, the merit of using poster presentation both conventional and printed posters for sharing research results, accepting feedback, transferring knowledge, receiving awards and prizes, seem to be ineffective (Moule, et al, 1998; Simone & Rodrian, 2001; Adams & Patrea, 2004; Rowe & Ilic, 2009; Goodhand, Giles, and Wahed, 2011; Ilic & Rowe, 2013; Stanton, 2013; Arslan, et al, 2014; Venkatesan & Coskun, 2019; Naseem et al, 2021; Leone. et al, 2022; and Farida, et al, 2022).

Electronic posters (e-poster), a modification of traditional paper-based posters delivered through Zoom meeting or web hosting e-posters, improve audience engagement with the presenter as he/she can supplement his/her oral presentation with multimedia hyperlink (Alyer, 2021) so the focus of e-poster is on the learning process rather than reporting

outcomes. E-poster brings benefit to the students, audience, presenter, event organizer, sponsor, environment (Shin,2012; Venkatesan, 2021; Chartier,2021).

In literature, numerous studies have been conducted and resulted some guidelines and several recommendations for the improvement of digital/e-poster presentation (Moule, et al,1998; Simone & Rodrian,2001; Adams & Patrea, 2004; Rowe & Ilic, 2009; Goodhand, Giles, and Wahed, 2011; Ilic & Rowe,2013; Stanton. 2013; Arslan, et al, 2014; Venkatesan & Coskun,2019; Naseem et.al,2021; Leone. et al, 2022; and Farida, et al, 2022). Nevertheless, no the literature has addressed the effectiveness of e-poster embedded into joint thesis application within the context of final project research of graduate students and Extended Technology Accepted Model (TAM 3).

The first aspect of TAM 3 is Perceived Usefulness (PU). It is the degree to which an individual believes that using certain technology would improve their productivity (Nkwenti & Abeywardena, 2019) while the second one is Perceived Ease of Use (PEOU). Davis (1989) defined PEOU as the degree to which a person believes that using a particular system would be free of effort. Davis' model can predict an individual's acceptance, adoption, usefulness, and ease of use of Information System (IS). According to Muganda, et al. (2016), there is a relationship between PU and PEOU in terms of user engagement, satisfaction, grade score, and self-reliance. The use of IS can improve the users' productivity. Akmal and Hariguna (2019) tested the Davis' model to 523 students and found that the Behavioral Intention of Use (BIU/Intention to Use) was significantly influenced by perceived usefulness (PU), perceived ease of use (PEOU), and the experience. Venkatesh, et al (2013) said that the users actual use of Technology is influenced by their intention and the intention itself is constructed by several factors such as social influence, performance expectation, facilitating condition, innovation of technology, behaviour of the users, and effort expectancy. These are called the unified theory of acceptance and use of technology (UTAUT).

Five out of twelve supervisors (41.6 %) refuse using the platform while six out of thirty (20%) supervisees had no intention to use the e-poster template embedded in the application. This problem has led to the formulation of the research objectives. The objectives are 1) to identify reasons for no intention of the application and e-poster template use; 2) to identify significant influences of Technology Acceptance Model (TAM 3) variables. The research questions were focused on the supervisors and supervisees dismissal of the application and provided e-poster template, and secondly, how did the application of joint thesis affect their productivity in writing master thesis. This research contribute constructive feedback for other graduate programs to have similar application and use e-poster presentation in their international joint thesis collaborations.

Method

This research belongs to explanatory quantitative seeking a more complete understanding of a relationship between variables. It serves as stepping stone for future research. The data were taken from questionnaire administered to 12 thesis supervisors from the Philippines and Malaysia, and 30 supervisees from Indonesia (batches 6 & 7 from Malaysia, batches 10&11 from the Philippine). The questionnaires were adapted from TAM 3 evaluation model not UTAUT as the researcher believes that the supervisors and supervisees are not influenced by social factors. The data were analyzed by using Partial Least Square Standard Equation Model (PLS-SEM) to reveal relationship among the indicators as seen in the figure 1 below;

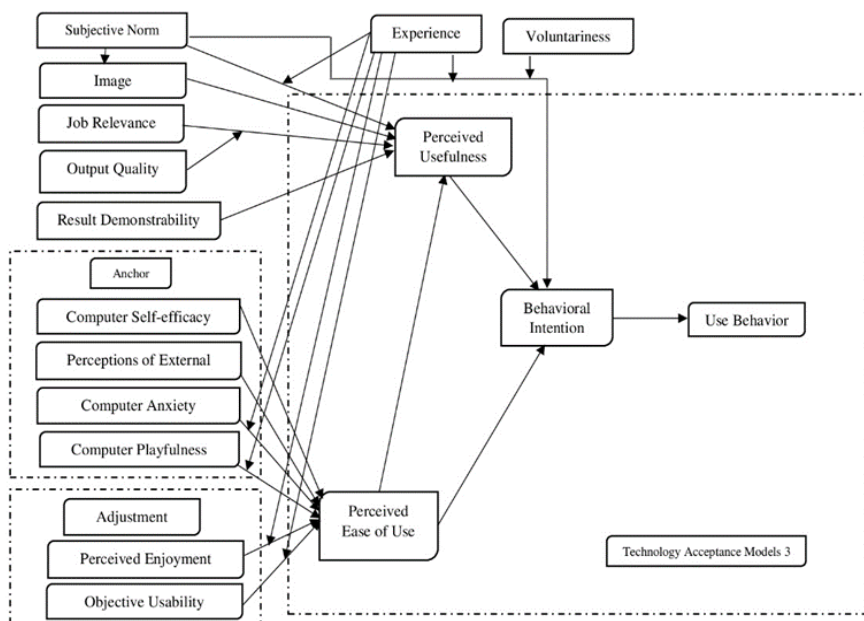


Figure 1. TAM 3 by Awodoyin, Adetoro, and Osisanwo (2017)

In order to help researcher in finding out the reasons why joint thesis application and e-poster presentation are accepted or unaccepted by the supervisors and supervisees and for undertaking suitable measures, the researcher used the following research constructs with 5 Likert scale (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree)

Table 1. Research Constructs

No. Laten Constructs OBSERVED VARIABLES	Laten Constructs OBSERVED VARIABLES	OBSERVED VARIABLES
1. PEOU Easy to learn	PEOU Easy to learn	1. PEOU Easy to learn Easy to reach the purpose Clear and easy to understand Flexible Free from difficulty Easy to use Feel nervous to use Feel confident to use
2. PU	PU	2. PU The thesis can be

	(Sun, 2003)The thesis can be finished quickly.	finished quickly. Writing thesis is easier to do Improving the users' works Increasing the productivity Enhancing the effectiveness Useful 3.Intention to use (IU)
3.Intention to use (IU)	Intention to use (IU) (Taylor and Todd, 1995)Users' desire to use Joint Thesis application and e-posters	Users' desire to use Joint Thesis application and e-posters Users' ability to use Joint Thesis application and e-posters Users' urge to use the application often4.Experiences
4.Experiences	Experiences (Szajna, 1996)Users have a great deal of experience using the application	Users have a great deal of experience using the application Number of times using the application and e-poster5.Voluntariness
5.Voluntariness	Voluntariness (Sun and Zhang, 2003)Users use the application when they need it.	Users use the application when they need it. Users do not need the website to submit the thesis. Although the application can be effective, the users do not need it.6.Behaviour
6.Behaviour	Behaviour (Davis, 2003)Users always spend their time to use the application	Users always spend their time to use the application Users access the application almost every day.

Users access the application for at least 15 minutes.

E-poster was blended into Joint Thesis application. The supervisors and supervisees should write his/her individual username and password in the form provided by the graduate program. In this application, they can enjoy proposal e-poster, chapter-by-chapter supervision, and final viva voce presentation. E-poster template can be seen in figure 3.

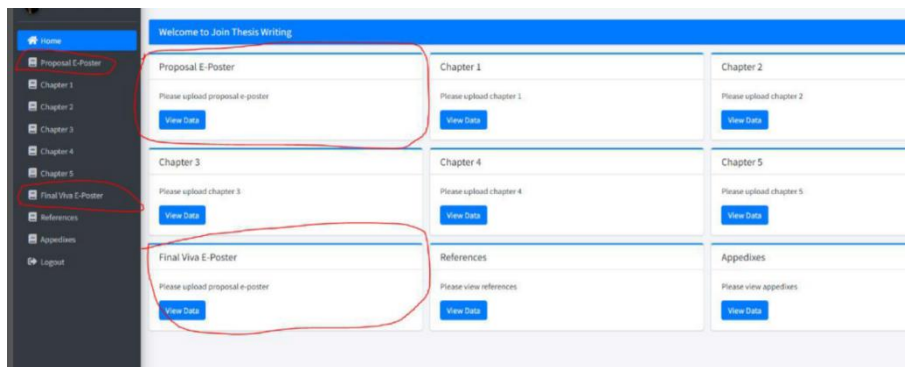


Figure 2. Setting of e-poster in the Joint thesis application

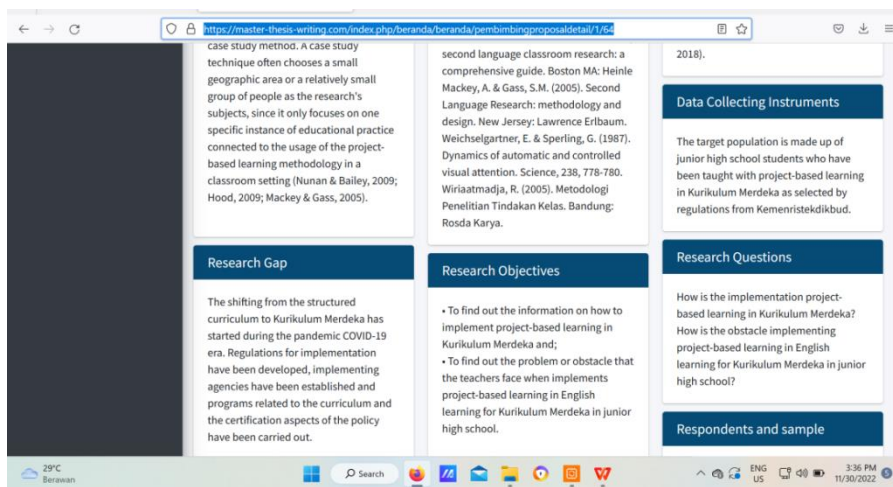


Figure 3. Template of e-posterarticle

Finding and Discussion

From measurement model it shows that the composite reliability of the observed variables is higher than 0.7. which means all variables are reliable or consistent. It is in accordance with the ideas of Hair, Hult, Ringle, and Sarstedt (2014) that the minimum composite reliability value in PLS analysis must exceed 0.7.

Table 2. Construct Reliability

Laten	Cronbac h's AlphaRho	Rho_AC omposite	Composi	Average Variance Extracted
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Keterangan	AVE	Variance	Construct	Cronbach
Use of Experience Perceived Ease of Use Perceived Usefulness Use Behaviour Voluntariness	0.4970.7990.650.8600.9320.873	0.4970.7990.650.8600.9320.873	0.4970.7990.650.8600.9320.873	0.4970.7990.650.8600.9320.873
Intention to use	0.4970.7990.650.8600.9320.873	0.4970.7990.650.8600.9320.873	0.4970.7990.650.8600.9320.873	0.4970.7990.650.8600.9320.873
Experiences	0.8600.9320.873	0.8600.9320.873	0.8600.9320.873	0.8600.9320.873
Perceived Ease of Use	0.8410.9270.8780.596	0.8410.9270.8780.596	0.8410.9270.8780.596	0.8410.9270.8780.596
Perceived Usefulness	0.8810.8940.9090.626	0.8810.8940.9090.626	0.8810.8940.9090.626	0.8810.8940.9090.626
Use Behaviour	0.8690.9200.9370.882	0.8690.9200.9370.882	0.8690.9200.9370.882	0.8690.9200.9370.882
Voluntariness	0.6140.6930.7950.570	0.6140.6930.7950.570	0.6140.6930.7950.570	0.6140.6930.7950.570

9200.9370.882Voluntariness0.6140.6930.7950.570	ived Usefulness0.8810.8940.9090.626Use Behaviour0.869			
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Voluntariness0.6140.6930.7950.570	0.6140.6930.7950.570	0.6930.795	0.6930.795	0.570

The constructs have Cronbach alpha score > 0.6. It is meant that all constructs are reliable because the composite reliability scores are above the minimum threshold level for composite reliability (0.7). Since AVE scores > 0.50 is higher than 0.5 (0.66, 0.87, 0.59, 0.62, 0.88, 0.57) the measures of the six reflective constructs have high level of convergent validity. The AVE

score is 0.873 and root score of AVE is 0.934 which is higher than the correlation scores inter-constructs (0.814;0.202;0.507;0.582), so the model has also good discriminant validity score.

By using a scale from 1 to 5 (from totally agree to totally disagree), the respondents had to evaluate statements in the questionnaires table 1, and the outer model is given in the figure 4 below;

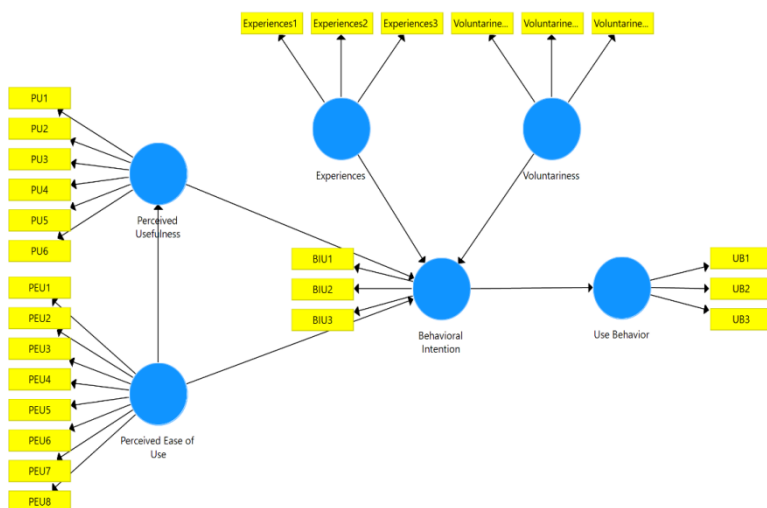


Figure 4. Outer Model of joint thesis application and e-poster

Users' experiences present the frequency or how often the users use the application to have communication with the supervisors. They are facilitated to get mentorship, guidance, and feedback from the supervisors so the teaching and learning process during joint thesis are organized here.

Table 3. Supervisors' experience in using the application

Experiences1I have a great deal of experience using the application0.910Experiences2I have used the application for many times.0.957Experiences3I sometimes used the application0.278??	I have a great deal of experience using the application0.910Experiences2I have used the application for many times.0.957Experiences3I sometimes used the application0.278??	0.910Experiences2I have used the application for many times.0.957Experiences3I sometimes used the application0.278??
Experiences2I have used the application for many times.0.957Experiences3I sometimes used the application0.278??	I have used the application for many times.0.957Experiences3I sometimes used the application0.278??	0.957Experiences3I sometimes used the application0.278??
Experiences3I sometimes used the application0.278??	I sometimes used the application0.278??	0.278??

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Based on the finding above--from the outer model--the third indicator (Experience 3) has score of 0.278 which shows that the indicator is invalid or not accurate. In the Experience variable, there are two valid indicators i.e., I have a great deal of experience using the application and I have used the application for many times. Those are analyzed through total effect model. The score is 0.166 for original sample that it interprets those good experiences will increase behavioral intention of use around 16.6%. The experienced users will give better intention to use the application and it supports the learning and teaching process in higher level. While inexperienced users need improvement because they rarely use the application.

When compared to Popescu (2010), the users who were not familiar with the web 2.0, usually had consideration not to use the application properly since the users' used of application or web only for entertainment purposes. Popescu found that the users are less familiar with the web to use in education purposes. So, Popescu recommended the users to use blogs or wikies to support the learning and teaching.

The structural model results can show that PEOU has the strongest effect on PU (0.437), followed by PU to intention (0.436), Intention to Use Behaviour (0.419), Volunteer to Intention (0.249), and Experiences to Intention (0.231).

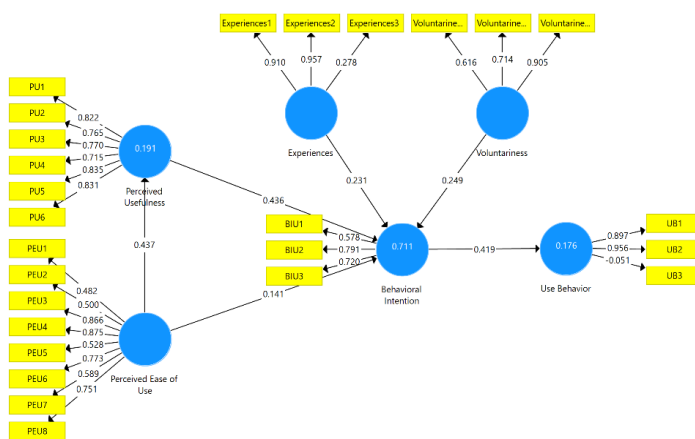


Figure 5. Inner Model of joint thesis application and e-poster

The four constructs PEOU, PU, Experience, and Volunteers explain 71.1% of the variance of the endogenous construct Intention ($R^2 = 0.711$), as indicated by the value on the circle. Intention (behavioral intention) explain 17.6% of the variance of behaviour to use.

It is shown that the respondents' intention has positive influence on behavior to use. It means the higher intention, the more frequent the respondents use the application. From the supervisors' feedback, it is found that they do not have intention to use the application because of the ease of aspect since they need additional effort to download, give feedback, save in the PDF format, upload again to the application. To the supervisees, e-poster presentation needs fast and stable internet connection. So, they do not want to voluntarily use it because of supporting facilities.

Perceive Ease of Use (PEOU) has positive or significant influence on Perceive Usefulness (PU). It can be interpreted that good PEOU value will increase PU. The increasing is 44.6% for every improvement. By using bootstrap or resampling, the score PEU towards PU is 0.508 with t-statistics of 3.342; p-value is $0.0001 < 0,05$.

The influence of PEOU on PU is indicated by f-square of 0.248. Because perceived ease of use significantly influences the perceived usefulness, it is recommended to all participants to

use the application and e-poster presentation. Comparing to the previous research done by Akmal and Hariguna (2019), perceived ease of use and perceived usefulness have significant influence on intention to use the application. The finding is also confirmed by Rosen and Kluemper (2008) that perceived ease of use and perceived usefulness are classified as the significant predictors of IS acceptance.

The influence of experience on Intention to use (Behavioral intention) can be seen from its coefficients of 0.166. It means that experiences have no strong influence on behavioral intention (only 16.6%) with p-value of $0.542 > 0.05$. Its p-values should be less than 0.05 to have direct influence on Intention to use (behavioral intention). It is supported by Maraqa and Rashed (2018) that users' experiences must be encouraged to use the IS regularly.

Finally, it is found that Intention to use (behavior intention) has significant influence on the behaviour of the participants to frequently sign in the application and e-poster (p-value=0.037).

Conclusion

Based on the findings and discussion, it is concluded the supervisors have performance (PE) and effort barriers (EE) since they need extra effort to download the thesis draft, write direct corrective feedback, save it into PDF format, and upload into the system. Master students or supervisees has problem with facilitating condition (FC) as they have low internet connection to render e-poster multimedia links. PEOU has significant influences on PU. Nevertheless, PEOU, PU, and Experience have no significant influence on Intention to use (Behaviour Intention).

Future Studies and Suggestions

It is suggested to revise the application by providing corrective feedback tools in the PDF format of the Master Thesis manuscripts and changing the software to accommodate multimedia rendering.

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