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DESCRIPTIVE STUDY OF TECHNOLOGY ACCEPTANCE MODEL IN ASYNCHRONOUS ONLINE LEARNING ON GENERATION Z

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ABSTRACT

The exponential rise in accessible education and emerging technologies has influenced the way people acquire knowledge and learning activities. This innovation proven with the growth of online learning, which is classified into two type: synchronous and asynchronous online learning. In Asynchronous Online Learning (AOL), the instructor will provides a pre-record material and assessment that will uploaded on some online platform. For the implementation purpose, technology acceptance is necessary in online learning. In Technology Acceptance Model (TAM), technology acceptance is described by the two factors, perceived usefulness and perceived ease of use. The aim of this study is to explore technology acceptance on generation Z who has experienced using asynchronous online learning platform. This study utilised a quantitative approach, in which an online questionnaire using the Perceived Usefulness Scale and Perceived Ease of Use Scale was sent to 415 person, aged 14-18 years old. Technology acceptance factors were evaluated by age group, genders, and period of using AOL platforms. Overall, the result indicated that the level of perceived usefulness (M = 21.26) and perceived ease of use (M = 22.42) for generation z who experienced with AOL platform was average. These results are hoped can be a reference for some institute who want to apply asynchronous online learning system.

Keywords: *Asynchronous online learning, technology acceptance, generation z*

1. PREFACE

The exponential rise in accessible education has influenced the way people acquire knowledge and learning activities (Goldie, 2016). The adoption of technology is causing a swift changes in the educational system which promote the flexibility of learning content (Lew et al., 2019). Technology has the potential to redesign conventional learning to digital learning (e-learning) which can decrease accessibility gaps and develop advanced relationship between learners and educators (King, 2017). The implementation of online learning also been highlighted in COVID-19 pandemic with the government regulation about distance learning and needs to face the education challenges (Ministry of Education and Culture, 2020).

There are two type of online learning that classified based on time and teaching method, which called synchronous and asynchronous online learning (Alhazbi & Hasan, 2021). Asynchronous Online Learning (AOL) become popular due to its flexibility that enables learner to study anytime and anywhere (Kim et al., 2021). In AOL, learning materials will be presented in web-based learning format (e.g., video, audio, text, etc.) that was prepared by the teachers and published through some online platform (Kim & Kim, 2021). In student perspective, online learning requires the learners to have technological competence to manage their personal education (Rasheed et al., 2020). In technology era, generation Z become the first generation that connect with technology since born and use internet very often (Szymkowiak, 2021). Generation Z also become the newest generation that entered workforce industry and wants to be integrate with the most recent technology in the environment (Hinduan, 2020).

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Davis et al. (1989) created Technology Acceptance Model (TAM) framework to predict users' acceptance in technology. TAM proposes perceived usefulness and perceived ease of use to predict users' behaviour and technology usage. Perceived usefulness refers the way people think that technology will increase their productivity, while perceived ease of use refers the way people see technology as a tools that can improve their efficiency in work.

During the implementation of online learning, existing inequalities connected to technology literacy has increased due to student's ability to use technology as a new learning instruction and dealing with various interface of learning platform (Rasheed et al., 2020). In Indonesia, previous study found that many students have difficulty in implementing online learning due to lack of ability to operating online instrument (Simamora, 2020; Febrianto et al., 2020). However, Xiberta et al. (2022) found that online learning were perceived, feasible, and match with learner's demand especially during the pandemic situation.

Due to the previous studies about lack of technology, this study aims to observe level of technology acceptance among generation z with asynchronous online learning in Indonesia.

2. RESEARCH METHOD

Participants

The study involved 415 participant consisted of 127 men and 288 women in Indonesia with ages ranging from 14 to 18 years old. Participants obtained through Google Form. The participants are those who has experienced using asynchronous online learning platform. In addition, this study also divide participants based on duration, into less than 1 months, 2 to 3 month, 3 to 6 month, and more than 6 month.

Research Instrument

The instruments used for measuring technology acceptance model are perceived usefulness and perceived ease of use scales, developed by Sun et al. and translated by Dharmadjaja. The perceived usefulness scale consists of 4 favourable items (e.g., "Using web-based learning system would enhance my effectiveness in the program"). The perceived ease of use scale consists of 4 favourable items (e.g., "It would be easy for me to become skilful at using web-based learning systems"). Each item was measured using 7-point Likert scale ranging from 1 as strongly disagree to 7 as strongly agree.

3. RESULT AND DISCUSSION

Participant's Characteristics

In this study, participants' demographic data consists of gender, age, and length of using AOL. The majority of participants were females (69.4%), age 21 years old (40.7%), and people who have been using AOL for more than 6 month (52.3%), followed by 3 to 6 month (20.5%).

Table 1
Demographic Data

Category		N (=415)	Percentage
Gender	Male	127	30.6%
	Female	288	69.4%
Age	17	12	2.9%
	18	19	4.6%
	19	19	4.6%
	20	64	15.4%
	21	169	40.7%
	22	78	18.8%
	23	41	9.9%
	24	6	1.4%
	25	7	1.7%
Length of using asynchronous online platform	1 month	47	11.3%
	2-3 month	66	15.9%
	3-6 month	85	20.5%
	> 6 months	217	52.3%

Instrument Analysis

The researcher conducted a reliability test using SPSS application to test the reliability of perceived usefulness scale and perceived ease of use scale. The result stated that perceived usefulness scale has a Cronbach's Alpha 0.884 and perceived ease of use scale has a Cronbach's Alpha 0.842. So, it's concluded that both instruments were reliable.

Data Analysis

Based on Table 2, it was found that the level of technology acceptance factor in this study is in the medium category. Perceived usefulness was found in medium category (M = 21.26), with minimum score was 10 and maximum score was 28. Perceived ease of use was also found in medium category (M = 22.42) with minimum score was 10 and maximum score was 28.

Table 2.
Descriptive Statistics

	N	Mean	Min	Max	Category
Perceived Usefulness	415	21.26	7	28	Medium
Perceived Ease of Use	415	22.42	11	28	Medium

Categorizations are based on hypothetical mean that was found by computing mean and standard deviation of data. The categorization divided into five categories, very low, low, medium, high, and very high as shown in the Table 3.

Table 3
Categorization

Factor	Mean Hypothetic	Category
Perceived Usefulness	X δ 15.24	Very Low
	15.24 < X δ 19.26	Low
	19.26 < X δ 23.26	Medium
	23.26 < X δ 27.28	High
	X > 27.28	Very High
Perceived Ease of Use	X δ 16.8	Very Low
	16.8 < X δ 20.55	Low
	20.55 < X δ 24.29	Medium
	24.29 < X δ 28.04	High
	X > 28.04	Very High

Based on the data on Table 4, most means are categorized as medium when compared to hypothetical mean, which ranges from 16.86 to 21.73. The average level of perceived usefulness on asynchronous online learning based on their gender, age group, and length of using asynchronous online platform are in medium category. However, it was shown that people aged 25 years old had lower perceived usefulness in asynchronous online learning.

Table 4
Perceived Usefulness

Category		N (=415)	Mean	Category
Gender	Male	127	20.85	Medium
	Female	288	21.43	Medium
Age	17	12	21.83	Medium
	18	19	20.74	Medium
	19	19	20.05	Medium
	20	64	21.41	Medium
	21	169	21.34	Medium
	22	78	21.73	Medium
	23	41	21.29	Medium
	24	6	20.17	Medium
	25	7	16.86	Low
Length of using asynchronous online platform	1 month	47	20.83	Medium
	2-3 month	66	21.36	Medium
	3-6 month	85	21.01	Medium
	> 6 months	217	21.41	Medium

Based on the data on Table 5, all means are categorized as medium when compared to hypothetical mean, which ranges from 20.14 to 23.36. The level of perceived ease of use on asynchronous online learning based on their gender, age group, and length of using asynchronous online platform are in medium category. There are no significant differences between all the mean in the data shown.

Table 5
Perceived Ease of Use

Category		N (=415)	Mean	Category
Gender	Male	127	22.44	Medium
	Female	288	22.41	Medium
Age	17	12	22.33	Medium
	18	19	21.05	Medium
	19	19	21.89	Medium
	20	64	21.78	Medium
	21	169	22.58	Medium
	22	78	23.36	Medium
	23	41	22.61	Medium
	24	6	20.17	Medium
	25	7	20.14	Medium
Length of using asynchronous online platform	1 month	47	21.79	Medium
	2-3 month	66	22.08	Medium
	3-6 month	85	22.15	Medium
	> 6 months	217	22.77	Medium

In this study, the result indicated that the level of technology acceptance among generation z who has experienced using asynchronous online learning was average. Significant findings were found in the result of perceived usefulness, which people aged 25 years old had low category (M = 16.86).

4. CONCLUSIONS AND RECOMMENDATIONS

Asynchronous online learning is a flexible type of online learning. Based on the research result, it was found that perceived usefulness and perceived ease of use among generation z who has experienced using asynchronous online learning was found to be average. The study's findings and data also shown that the length of using asynchronous online learning increase the way people perceived technology's usefulness and ease of use. However, this study has a limitation according to uneven ages distribution. The suggestion for future researchers may observe the level of technology acceptance model in another generation and can involve another variable that effect online learning acceptance.

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