


“Factors influencing the formation of consumer engagement and consumer satisfaction with e-learning activities”

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FACTORS INFLUENCING THE FORMATION OF CONSUMER ENGAGEMENT AND CONSUMER SATISFACTION WITH E-LEARNING ACTIVITIES

Abstract

The COVID-19 pandemic that plagued the world has resulted in many e-learning software that drove virtual learning activities to jump sharply and began to replace face-to-face meetings. This paper aims to find out the influence of digital readiness, technical and information quality, instructor quality, e-learning adoption and attitude on consumer engagement, and consumer satisfaction with e-learning performance. The study was conducted in the form of a quantitative survey at Duta Wacana Christian University in the Special Region of Yogyakarta, Indonesia, over the period from June 2020 to September 2020. The study sample using the purposive random sampling technique consisted of 175 students as respondents. Various statistical methods, including descriptive and structural equation modeling, were used to analyze the data and test the hypotheses of the model. Key findings were that there is a statistically direct impact of digital readiness, technical and information quality, e-learning adoption and attitude, and instructor quality on consumer engagement, and thus consumer engagement influences consumer satisfaction positively and significantly. With these results, tutorial activities need to be implemented for the use of popular e-learning software and related technological literacy, because the need for e-learning software will be even more massive in the future.

Keywords

Special Region of Yogyakarta, Indonesia, AMOS-SEM, engagement, satisfaction

JEL Classification

M30, C80

INTRODUCTION

The COVID-19 pandemic that hit the world at the end of 2019 has caused not only a world health crisis but also the occurrence of an economic crisis. Several Indonesian economic indicators made this clear, in addition to the Rupiah exchange rate against the United States Dollar (US \$), which fell from around Rp. 14,000,-/US\$ in early 2020, to around Rp. 16,000,-/US\$ in May 2020 (Pransuamitra, 2020). The composite stock index on the Indonesia Stock Exchange has so far decreased by 35%. This has accumulated an impact on the estimated economic growth, which is predicted to only reach 2.3% or even -4% if the pandemic continues (Supriyatna & Djailani, 2020). The impact of the pandemic is not only on measurable output in economic activities but also on social activities. The term social distancing, physical distancing, or WfH (Work from Home), has become an important part of government and community efforts to stem the spread of the COVID-19 pandemic. On the other hand, advances in information and communication technology in the past decade have led to many activities being carried out using a variety of digital applications. In 2020 there are around 175.4 million Internet users in Indonesia; compared to the previous year, there was an increase of 17% or 25 million internet users in Indonesia (Pertiwi, 2020).



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Conflict of interest statement:

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The demands of WfH have led to the emergence of various software applications that could reduce the barriers due to limited communications. Zoom, Google Meet, Go Training, and Microsoft Teams are examples of several software that can be used for remote communication and their offspring, such as video call conferencing, distance learning, online meetings, etc. Before the COVID-19 pandemic, online learning activities were used by many institutions for their teaching activities (Cidral et al., 2018; Duran & Costa, 2016; Rodríguez et al., 2019). The adoption and use of various e-learning systems are also gaining popularity and can transform many traditional face-to-face teaching platforms effectively (Goh et al., 2017; Y. C. Lin et al., 2016; Mtebe & Raphael, 2018).

Online learning can be divided into full e-learning activities and blended learning activities; the absence of a physical classroom can be replaced with presence through the Internet (Al Natour & Woo, 2020; Baker & Unni, 2018; Nortvig et al., 2018). Besides, it is possible to attend online classes being anywhere; business people can promote a product more easily with e-learning activities (Cho & Tobias, 2016; Sary & Herlambang, 2019; Ramadiani et al., 2017). In the presence of the COVID-19 pandemic, e-learning activities are increasing rapidly; however, few studies have been done on the effectiveness of using e-learning and many of the variables associated with this activity have not been explored further. This study was undertaken with primarily one objective: to test the relevance of the model that describes the relationship between variables that form engagement and satisfaction with e-learning activities.

1. LITERATURE REVIEW AND HYPOTHESES

The model for describing the success of an online teaching system is based on the theory of reasoned action, which is then modified by a technology acceptance model (Al-Fraihat et al., 2020; Davis, 1989). Based on those theories, this study uses several variables, which deal with the formation of consumer engagement and consumer satisfaction with e-learning activities, namely technical and information quality, digital readiness, instructor quality, and e-learning adoption and attitude. Technical and information quality is related to matters of a technical nature that support online learning processes, such as the ability of the software to operate smoothly and well during e-learning, other supporting well-running information systems, i.e., stable Internet network, Internet network security, Internet speed, and others, as well as ease of use of the software. It was shown that there is a positive relationship between good software quality and consumer satisfaction with learning activities (Balaban et al., 2013; Garcia-Smith & Effken, 2013). With the demand for teaching and learning activities to begin immediately even in a lockdown situation, many educational activities in the Special Region of Yogyakarta, Indonesia, shift hardware and software for these activities. This also happens in many countries with poor education systems; this can cut out the physical con-

tact between universities or colleges and students around the world (Shehzadi et al., 2020).

The second construct – digital readiness – is the readiness to accept digital technology. It can be interpreted as the ability of consumers to deal with their understanding, skills, attitudes, and competencies to use existing information and communication technology to fulfill their goals and expectations of participating in learning activities, as well as consuming the material delivered. People who have been well educated to operate with digital technology should be familiar with how to use these technologies to follow e-learning, even though not all consumers use digital technologies effectively (Kim et al., 2019). With the COVID-19 pandemic, which caused many organizations to start meeting online, the importance of defining digital readiness is realized. As the frequency of virtual meetings increases, readiness to be engaged in face-to-face using different software (Zoom, Microsoft Teams, Google Meet, and others) is essential for the success of these activities. E-learning readiness can prepare students to fully explore the learning materials to maximize their achievements, although digital readiness indicates learners' belief in virtual learning (Bubou & Job, 2020; H. H. Lin et al., 2016). In brief, online learning readiness has a significant relationship with the formation of consumer engagement with online learning activities.

In general, instructor quality as a third variable can be defined as the quality of an instructor. It is a variable that describes the relationship between the quality of an instructor, which includes instructor competence, ability to deliver material, interaction with participants, as well as instructor's attitude towards the learning process, and consumer satisfaction. A positive relationship between good instructor quality and consumer satisfaction was shown. It may increase participants' motivation to learn the material further (Cidral et al., 2018; Goh et al., 2017; Mtebe & Raphael, 2018; Sun et al., 2008). In addition, an instructor boosts and assesses the performance of students during the study process, as well as provides students with appropriate software to meet certain demands of the study process. This is implemented through verbal and non-verbal activities (for example speaking, gestures, or written assignments). (Alawamleh et al., 2020; Gunesequera et al., 2019). Instructors need new technologies in e-learning activities to connect with students and finally build engagement (Duta et al., 2015).

The fourth variable – e-learning adoption and attitude – refers to the abilities of consumers to understand the learning material and absorb material during the learning process. (Wu et al., 2011). Psychological and organizational ability to use devices fluently is important for its adoption (Boateng et al., 2016; Martins & Nunes, 2016). Technology factor is considered a dominant aspect in e-learning adoption; this is more influenced by the application of technology acceptance in countries with different cultures (Tarhini et al., 2017). Thus, there are several views of how culture can influence e-learning adoption. Although cultural aspects are integrated into technology adoption means, culture is also viewed as individual values, which must be included in technology adoption and engagement models as well (Mehta et al., 2019).

In learning activities, all four variables together form consumer engagement. In general, engagement in a product or service is related to the quality of business made by individuals. In this study, it is related to consumers or participants of online learning. This engagement contributes to the achievement of the good academic results the person had desired. Participants who have a deeper sense of engagement in the learning material will encourage themselves to have a ben-

eficial educational experience, which in turn means understanding of learning material (Hodge et al., 2018). However, there are many different insights into this important variable. It is said that consumer engagement is classified as a transcending relational notion, while at the same time it is suggested that consumer engagement consists of two important dimensions, namely cognitive and behavioral ones. (Bilro & Loureiro, 2020; Ting et al., 2020).

On the contrary, concerning the experience of product consumption, consumers commit repeated journeys with the company and their social networks. Consumer engagement consists of the consumer satisfaction level and consumer emotional connectedness level; thus, consumer engagement may have three dimensions (Monferrer et al., 2019; Parihar et al., 2019; Venkatesan, 2017).

From various points of view and understanding of consumer engagement, this study uses this variable from the point of view of the interaction between instructors and consumers. The important aspect of student engagement is interaction, which allows students to exchange ideas and construct meaning individually (Leslie, 2019; Purarjomandlangrudi et al., 2016).

Eventually, consumer engagement in e-learning activities influences consumer satisfaction. The variable of consumer satisfaction has been widely discussed, and many definitions cover many aspects related to satisfaction, such as a time for consuming the product, focus on the attributes consumed by consumers, aspects of thoughts and feelings, and others. In this study, consumer satisfaction is defined as cognitive, affective, and conative aspects of a person based on the evaluation of several product attributes, experiences related to product consumption, and experiences related to personalities involved in the consumption process expressed by that person before, during, and after consumption of these products (Giese & Cote, 2000). Satisfaction is divided into cognitive satisfaction and effective satisfaction, while at the same time it may consist of system quality, information quality, service quality, supportive factors, learner perspective, and instructor attitudes (Ozkan & Koseler, 2009; Yilmaz, 2017). It is stated that e-learning satisfaction is related to all benefits that a student receives from using e-learning, and

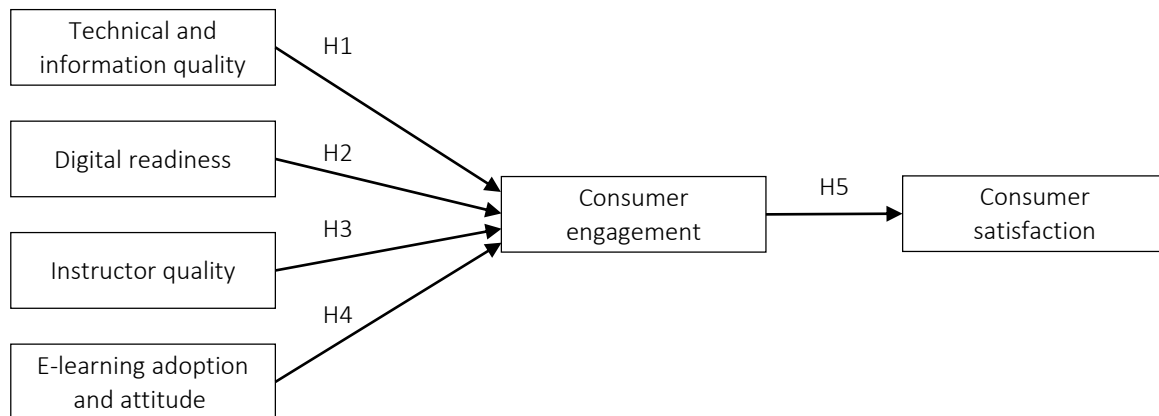


Figure 1. Model framework

it was found that the intensity of the discussion does not have an impact on increasing participant satisfaction with e-learning activities (Al-Azawei et al., 2017; Cho & Tobias, 2016).

Figure 1 presents the model framework used in this study.

Based on the literature review, the purpose of this study is to examine the effects of technical and information quality, digital readiness, instructor quality, and e-learning adoption and attitude on consumer engagement and consumer satisfaction. Based on the model framework, five hypotheses are identified as follows:

- H₁: The technical and information quality variable affects the consumer engagement variable.*
- H₂: The digital readiness variable affects the consumer engagement variable.*
- H₃: The instructor quality variable affects the consumer engagement variable.*
- H₄: The e-learning adoption and attitude variable affects the consumer engagement variable.*
- H₅: The consumer engagement variable affects the consumer satisfaction variable.*

2. METHODOLOGY

The study used a survey to collect relevant data. The sample included 175 people using purposive random sampling; the respondents select-

ed were namely those who had participated in distance learning activities via the Internet in the form of online lectures, online seminars, etc. During these learning activities, respondents used such software as Zoom, Google Meets, or Microsoft Teams.

Respondents were given a questionnaire, which was uploaded using Google Forms. The questionnaire consists of two parts. The first part is information about a profile, such as gender, age, monthly expenses, place of residence, frequency of using software for e-learning, and the material presented in e-learning. While the second part contains questions to find out the perceptions about e-learning adoption and attitude, digital readiness, academic engagement, instructor quality, technical and information quality, and consumer satisfaction.

E-learning adoption and attitude was measured by the impressions of the respondents connected to the use of Zoom, Google Meet, or Microsoft Team while participating in e-learning activities and the impressions regarding abilities to interact with colleagues and speakers in e-learning activities. Meanwhile, digital readiness was measured by the level of knowledge sufficient to operate e-learning hardware and the level of competence sufficient to operate e-learning software. Instructor quality was measured by respondents' perception regarding the importance to master online learning software and the importance of interactions with instructors during online learning activities. Technical and information quality was measured by the thoughts of respondents considering

the safety of online learning, the confidentiality of data and user information, as well as how often respondents experienced technical problems during online learning. Academic engagement was measured by the evaluation of whether respondents can enjoy the atmosphere of an online learning activity even though it is not face-to-face. It was essential to understand whether the respondents are interested in knowing more about the material presented and want to learn and deepen this material. Moreover, consumer satisfaction was measured by the level of happiness and satisfaction with being engaged in online learning activities.

The study location was the Special Region of Yogyakarta, Indonesia, over the period from June 2020 to September 2020. After the questionnaires were collected, preliminary processing was carried out to ensure whether there was any data missing, and to define whether any respondent entries were incorrect or incomplete. The data was processed using AMOS software to determine the feasibility of the model and hypotheses presented in the model framework.

Testing for Structural Equation Modeling (SEM) consists of two stages, namely the goodness-of-fit test and structural model testing. The criterion goodness-of-fit is commonly used and is based on the comparison of the observed covariance matrix with the estimated covariance matrix, with several measures, including the ratio χ^2 to degrees of freedom (df), root mean square error of approximation (RMSEA), non-normed fit index or Tucker-Lewis index (TLI), normed fit index (NFI), and comparative fit index (CFI).

Table 1 presents several measures of the feasibility of the model.

Table 1. Goodness-of-fit criterion

Source: Hair et al. (2014).

Fit Indices	Criteria
CMIN / df	< 2
IFI	> 0.9
TLI	> 0.9
CFI	> 0.9
RMSEA	<0.08

3. RESULTS AND DISCUSSION

3.1. Respondent profile

The following are the results of profiling 175 respondents who have filled out a questionnaire made in Google Form format.

Table 2. Gender composition

Gender	Total	Percentage (%)
Male	80	45.7
Female	95	54.3
Total	175	100.0

Table 3. Age of respondents

Interval Age	Total	Percentage (%)
> 18-22 years	109	62.3
> 22-26 years	60	34.3
> 26-30 years	3	1.7
> 30 years	3	1.7
Total	175	100.0

Table 4. Respondent occupation

Type of occupation	Total	Percentage (%)
University / College student	132	75.4
Civil servant / Private employee	25	14.3
Entrepreneur	3	1.7
Others	15	8.6
Total	175	100.0

Table 5. E-learning software

Type of software	Total	Percentage (%)
Zoom	81	46.3
Google Meet	42	24.0
Microsoft Teams	31	17.7
Muddle	3	1.7
Others	18	10.3
Total	175	100.0

Table 6. Degree of software usefulness

Activity	Total	Percentage (%)
Attending lectures	109	36.0
Attending seminars, workshops, etc.	75	24.8
Doing assignments with friends from college/office friends	66	21.8
Chatting with friends	53	17.5%
Total	303	100.0%

The profiling results show that most respondents are balanced between men and women, the largest age range is > 18-22 years, and the majority are students. These findings show that users of e-learning activities are dominated by the young or millennial generation who naturally has good digital literacy.

Table 5 shows that Zoom is the most popular and widely used e-learning software in Indonesia. This can stem from its usage at the global level, which since the pandemic has increased from around 10 million meeting participants in December 2019 to 300 million meeting participants in April 2020. In Indonesia, Zoom experienced a significant increase, from around 90,000 participants in March 2020 to around 250,000 participants in April 2020. Meanwhile, several competing brands, such as Google Meet and Skype, only recorded around 10,000 and 70,000 participants respectively in March 2020. The use of Microsoft Teams software in Indonesia is very small due to relatively complex and difficult terms of use, as well as higher prices for Teams. This shows that Zoom with a more user-friendly performance at a low cost is more accepted by consumers in Indonesia. Considering the aim to use software, there are two main categories: software used to attend lectures and software used to attend online seminars or workshops. This shows that consumers use the software only for its basic function, namely following online lectures and seminars. The use of software in Indonesia also appears to be forced due to the COVID-19 pandemic, which has caused many activities to be postponed, canceled, or carried out from home. However, in the future, with the advancement of e-learning software facilities and prolonged new-normal activities, the usage of software will be more diverse as consumers increasingly rely on software to access learning materials.

3.2. Model results and discussion

Using AMOS 24 software, the model becomes as follows (see Figure 2).

After the process is carried out, the results are as follows (Table 7).

Table 7. Goodness-of-fit results

Sources: Author's elaboration.

Criteria	Output
CMIN / df	1.618
IFI (incremental fit index)	0.951
TLI (Tucker-Lewis index)	0.930
CFI (comparative fit index)	0.949
RMSEA (root mean square error of approximation)	0.064

CMIN / DF value is less than 2, the IFI, TLI, and CFI numbers are above 0.9, and the error measuring number (RMSEA) is below 0, which is 0.064. Thus, following overall criteria, the model can be declared fit with the theoretical model.

Table 8 presents test results of the inter-variable relationship within the model.

Table 8. Relationship in the model

Relationship	Significance level
Digital → Engage	0.000*
Instructor → Engage	0.040*
Learning → Engage	0.072
Technical → Engage	0.000*
Engage → Satisfaction	0.000*

Note: * means $p < 0.05$.

Table 8 shows that of the four proposed research hypotheses, the conclusion is that consumer engagement is influenced positively and significantly by digital readiness and technical and information quality; while e-learning adoption and attitude and digital readiness do not affect consumer engagement, and consumer engagement positively and significantly affects consumer satisfaction.

Thus, a sense of involvement in online seminars or lectures is influenced by the ability to master computer equipment and software used during the activity, not by the instructor's ability to convey the material, or the desire to learn the material presented. If someone feels that they have adequate digital literacy and can interact with software that is currently being used for learning activities (such as Zoom, Google Meet, or others), then they will feel involved in the e-learning activities they are participating. That is, positive involvement will encourage satisfaction with the e-learning activities that are being followed.

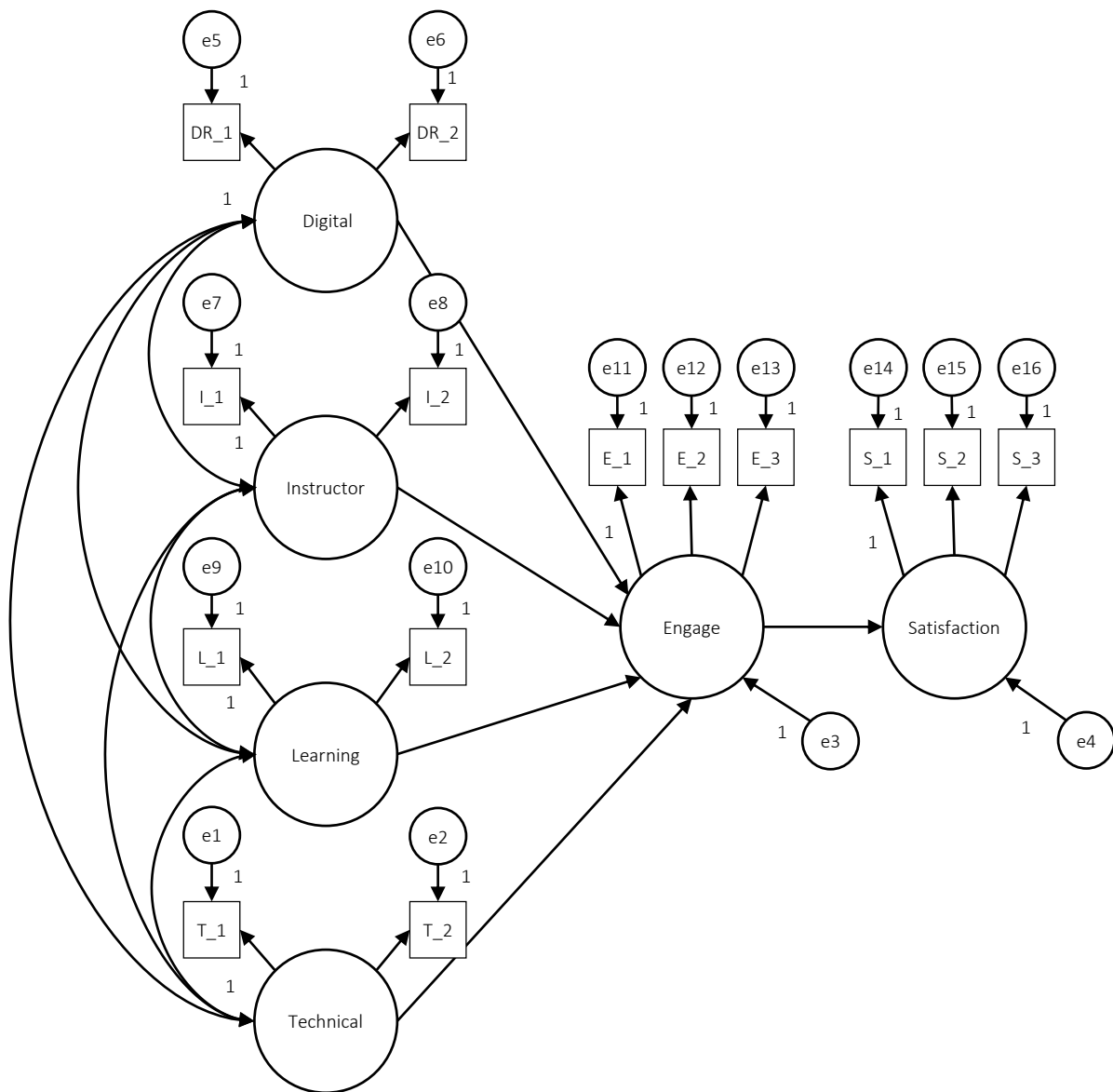


Figure 2. Model in AMOS graphics

This can be related to the profile of respondents who are part of the millennial group and are currently students. They use e-learning software more widely because of the COVID-19 pandemic. In addition, they use it to a functional extent. So, e-learning activities are not planned from the beginning of teaching-learning activities, so the content of the material is not a priority; their presence is more important than understanding the learning material. Therefore, if the instructor can present learning material in a good and interesting manner and consumers want to be involved, this will encourage them to be satisfied with e-learning activities.

The findings in this study coincide with findings in other studies in many countries. When examining the relationship between variables in the implementation of e-learning activities with the consumer satisfaction being changed to academic achievement, Kim et al. (2019) stated that although students positively perceived e-learning experiences on campus, they must have strong digital skills; without academic engagement formation, consumer satisfaction will be difficult to form, because consumers have no desire for engagement. This finding is also in line with Goh et al. (2017) and Shokery et al. (2016), who stated that students with expert communication skills tend to

have higher satisfaction in Malaysia. Gunesekera et al. (2019) and Rodríguez et al. (2019) found that good assessment process for students, good instructors, and good material delivery processes also affects satisfaction with e-learning activities in Spain. Aldholay et al. (2019) showed important factors such as good quality information technology, competent instructors, and good transformational leadership as determinants of consumer satisfaction, which leads to increased achievement in Yemen. Shehzadi et al. (2020) showed that consumer satisfaction can have an impact on word-of-mouth activities carried out by consumers and increase instructor's image in Pakistan. But consumer satisfaction with e-learning activity is indeed influenced not only by consumer engagement; it is also influenced by the strong social presence, good teaching presence, and cognitive presence (Cho & Tobias, 2016; Kucuk & Richardson, 2019). Papagiannidis et al. (2017) studied the relationship between technical and information quality and consumer engagement. These findings are also in line with the results of a study in a retail store in southern Italy, which shows that the appearance of computer-based promotional devices that are made attractive can influence consumers to engage further with the products and then encourage consumers in making purchases.

Thus, if the feeling of engagement persists in the long run, it can even make consumers loyal to a certain brand (Chen et al., 2020). This is why Zoom software has become very popular in Indonesia during the COVID-19 pandemic. With relatively cheap prices, Zoom is widely used for e-learning activities and has been proven to build consumer engagement and satisfaction. Over time, consumers have begun to be loyal to use Zoom as an e-learning medium. Hinson et al. (2019) studied Facebook users and found that engagement has also led to the desire to be more involved with Facebook content and even participate in consumer-generated advertising. Hence, it shows that engagement can develop not only to have an impact

on customer satisfaction but also on many other constructs, such as media engagement, community engagement, and others; however, consumer engagement is still not the same as the occurrence of consumer engagement but with a face-to-face learning process (Bilro & Loureiro, 2020; Dwivedi et al., 2019).

Moreover, teaching and learning are complex that are influenced by more than just the teaching format. Gegenfurtner and Ebner (2019) and Nortvig et al. (2018) concluded that consumer satisfaction is still below the face-to-face activities to deliver learning material. Unless the situation and conditions are not possible, such as in a pandemic situation that requires learning activities at home, learning activities face-to-face with instructors and physical interactions are more likely to allow further learning engagement. However, Quesada-Pallarès et al. (2019) suggested the need to pay attention to consumer characteristics, which may prefer e-learning activities to classroom meetings. However, the results are slightly different from the findings of Eom (2015), who studied students in the United Kingdom and the USA, where the consumer can be satisfied without being mediated by the engagement variable; it can be replaced by intrinsic motivation derived from within the consumer.

It can be seen that with advances in information technology and communication, learning activities that used to be only through face-to-face activities now can be replaced by e-learning activities, which have proven to be more efficient and effective in delivering material and providing satisfaction to consumers with the fulfillment of existing requirements. There are indeed some shortcomings of these e-learning activities, but there are also various deficiencies in traditional learning activities; so suggestions such as blended learning to adopt the various strengths of this type of learning need to be considered in the future (Y.C. Lin et al., 2016; Baker & Unni, 2018; Nortvig et al., 2018).

CONCLUSION

This study contributes to the theoretical and marketing understanding of consumer attitudes towards e-learning software in virtual learning practices in Indonesia. From descriptive analysis, results show that the mostly-used e-learning software by respondents is Zoom, which is used to attend lectures and

to attend online seminars or workshops. Other results show that the profile of most users is the young or millennial generation, with relatively good intellectual abilities (students), and using software is only limited to basic functions, namely attending lectures and online seminars.

At a theoretical level, this study has contributed greater knowledge and understanding of the various variables that appear responsible for structuring consumer satisfaction with e-learning software. Consumer engagement in e-learning was positively and significantly influenced by digital readiness, technical and information quality, and instructor quality. Thus, consumer engagement positively and significantly affected consumer satisfaction with e-learning activities. However, consumer satisfaction with e-learning activities is a complex notion. From the practical point of view, this study found that although e-learning activities help consumers a lot, blended learning activities, which also include face-to-face learning activities, still need to be considered in the future to obtain optimal satisfaction.

Practitioners can use these findings in designing e-learning activities using e-learning software, especially Zoom, which need to be improved among the younger generation (millennials). Alongside being increasingly popular in the future (post-COVID-19 period), many business and non-business activities will continue to use e-learning software massively. In addition, tutorial activities need to be implemented in Indonesia for the use of popular e-learning software and related technological literacy, because the need for e-learning software will be even more massive in the future. On the other hand, huge demand will encourage healthy competition among information technology companies making e-learning software. It is estimated that e-learning software tend to be more user-friendly in the future, and consumers who have limited capabilities in information and communication technology can still use such technologies.

AUTHOR CONTRIBUTIONS

Conceptualization: Singgih Santoso.

Methodology: Singgih Santoso.

Project administration:

Resources: Singgih Santoso.

Software: Singgih Santoso.

Writing – original draft: Singgih Santoso.

Writing – review & editing: Singgih Santoso.

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