The Effect of Perceived Usefulness and Perceived Easy to Use on Student Satisfaction: The Mediating Role of Attitude to Use Online Learning

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Abstract
The aims of this study is to analyze an empirical research model on the effect of perceived usefulness and perceived ease to use on student satisfaction with the mediating role of attitude to use online learning. The sample of this study were students from the Faculty of Economics and Business, Yogyakarta Muhammadiyah University. An empirical model and hypothesis testing was analyze using the Structural Equation Modeling (SEM) of the AMOS 23 program. The design of this study uses a quantitative approach. A sample of 203 students were tested in this study. The sampling technique used purposive sampling. The results of hypothesis testing show that there is a positive and significant effect between perceived usefulness and satisfaction and attitude. Perceived easy to use has a significant positive effect on attitude to use online learning but not significant on student satisfaction. Attitude to use online learning has a significant positive effect on student satisfaction.

Keywords
Perceived usefulness; perceived easy to use; satisfaction, attitude

Introduction
The covid-19 pandemic has altered many aspects of our daily life as well as the way we traditionally learn, so lecture meetings that apply theory and practice face-to-face directly change to online methods (online), and to ensure that students continue to acquire knowledge and skills, the majority of higher education institutions applied fully online learning or Hybrid learning. With more information technology, learning should be more flexible and enjoyable because there is dependable learning content at your fingertips (Shao, 2020) (Han & Sa, 2022). Furthermore, the development of technology including the internet, online meeting programs, and social media apps has made teachers, and students can organize their daily classes in virtual classrooms. Online learning became a term for multimedia technology that supports this type of online education (Mailizar, Burg, & Maulina, 2021) (Lazim, Ismail, & Tazilah, 2021).
The development of education in the field of technology is also felt by all countries with advances in technology using the internet, as well as the use of media or applications used for remote teaching and learning processes. One of the infrastructure facilities prepared by educational institutions is learning media (Lazim et al., 2021) (Prokopenko & Berezhna, 2020). The learning media used should consider the target user and also adapt to the times. Technology is increasingly advanced and developing in the current era, learning media requires development that is more innovative and also easily accessible, used, and understood by students (Sukendro et al., 2020).

Fred Davis proposed the Technology Acceptance Model (TAM) theory in 1986 according to Theory of Reasoned Action (TRA) (Yousafzai et al., 2010). According to (Buabeng-Andoh, 2018) TAM is a method that aims to explain computer acceptability in general and explain the behavior or attitudes of its users in a population. Based on TAM, behavioral intention to use two parameters: (1) perceived usefulness is a person's belief in using the system so that it can affect performance improvement and (2) perceived ease of use, which is a person's belief in thinking that using the system is not difficult. In addition, TAM also shows the effect of external aspects, namely the influence of the characteristics of the development process system and the intended use mediated by the perceived usefulness and the ease of use obtained. In addition, perceived ease of use can affect the perceived usefulness of the system (Alshurafat et al., 2021). Park (2009) stated that TAM is considered the best model in complaining user behavior towards new information technology systems. TAM can be effective in explaining how users perceive existing systems (OSMAN, CHOO, & Rahmat, 2013).

According to Isnain, Gunawan, Wahyudi, and Yani (2021) interpreting perceived convenience is a belief in ease of use, namely the degree of user confidence regarding a technology or system that can be used smoothly and free from a problem. Meanwhile, (Tung, Chang, & Chou, 2008) suggest that ease of use is a dimension of one's trust in technology or system. The use of perception is a decision-making process regarding beliefs in which a person will feel the information system can be used properly. The construct of perceived ease of use (perceived ease of use) is decision-making through trust, which means that information can be easily received, but there is someone who believes that the information system is difficult to use so that person does not use it (Doll, Hendrickson, & Deng, 1998) (D. Shin, 2021).

This research needs to be carried out because online learning media has transformed the education sector during and after the covid-19 pandemic, today there are many educational institutions developed their learning management system, but there are still deficiencies. An evaluate the students’ awareness and intention of using online learning is considered essential. The efficiency of online course platforms can be measured by a high degree of satisfaction from its most crucial stakeholders, the students. By knowing the factors that influence the acceptance of online learning media and students’ stratification, institutional leaders of a campus can make the right decision to select online learning tools that is suitable for the characteristics of their students. Based on this, a study is needed to analyze and investigate the perceptions of usefulness and ease to use on student satisfaction and their attitudes toward online Learning. This study contributed to fulfill and answered the gaps of previous research inconsistent research on the relationship between perceptions of usefulness and ease to use on satisfaction and attitudes.
Theoretical Review and Hypothesis Development

The effect of perceived usefulness on student satisfaction and online learning attitude

Several empirical studies on perceived easy to use and perceived usefulness in online learning platforms and technological acceptance models have been conducted (Almaiah, Al-lozi, Al-Khasawneh, Shishakly, & Nachouki, 2021). Perceived ease to use could be described as the level of conviction throughout the essence that using a specific system does not require hard work (Davis, 1989). Furthermore, perceived ease of use is related to how convenient it is to information relating and showcasing of a technological system. To put it another way, the more students feel comfortable using e-learning platforms, the higher its convenience and practicality in adopting the system. Nonetheless, perceived usefulness is defined as a degree of perception through the use and optimisation of a specific system's performance (W. S. Shin, Kang, & Learning, 2015).

Perceived usefulness is when people assert that implementing a technology will raise the quality of their work. As a result, the more useful the e-learning platform is, the more keen users are to use it (Tahar, Riyadh, Sofyani, Purnomo, & Business, 2020). Similar studies have been conducted to investigate students' perceptions of the mobile learning platform in Jordan (Almaiah et al., 2021). The results revealed that M-learning is among the most encouraging instructional technology for growth in academic contexts. It is further explained that students perceived it useful and easy to use when they find that online learning platforms enhance their performance and successfulness by facilitating their entire learning productivity. m-Learning and e-Learning are not synonymous. m-Learning is a component of e-Learning. Thus, the author uses m-Learning intended to reinforce key concepts.

Matter of fact, more research is required given the frequently usage as well as its significance in the time of this pandemic. As a result, this study seeks to fill a gap in the literature by examining and defining the major characteristics that would inspire university students to use an online learning platform to improve their educational well-being and learning experience satisfaction throughout this pandemic. Meanwhile, another study conducted by Elkaseh, Wong, Fung, and Technology (2016) revealed perceived easy to use and benefits in social networking media were major factors in determining students' and lecturers' readiness to accept and use e-Learning in Libyan college education. As shown in the findings of this study, use of social networking media plays a significant role in the adoption of e-learning in Libyan higher education. Thus, the proposed model in this study will be:

**H1:** Perceived usefulness is strongly effect on student satisfaction

Education, learning, and teaching methods have all been influenced by technological advancements. As a result, education has rapidly grown, supporting the use of e-learning, which is a direct result of the combination of education and technology and is widely considered as a potent learning tool (Al-Frahhat, Joy, & Sinclair, 2017). Attitude is outlined as a person's perspective and evaluation of anything or anyone, as well as an affinity to react directly or indirectly to certain ideas or substances (Vargas-Sánchez, Plaza-Mejía, Porras-Bueno, & Jafari, 2016). In other words, student's general impression of his or her behaviors is equivalent to the student's attitude toward specific tasks. Perceived usefulness denotes a level of assurance that e-learning will result in improved outcomes or learning goals (Hao, Dennen, Mei, & Development, 2017).
Perceived usefulness is often defined as a student’s belief that self-efficacy will assist them in achieving educational goals (Jung & Yoon, 2021). Moreover, students can effectively implement their e-learning system, teaching courses should improve student awareness and computer skills. It is explained in greater detail that online learning self-efficacy to use technology and effectively manage time are critical components of actual use and acceptance. Online learning has numerous advantages for students, including greater control over their learning environment (Tan, Ooi, Leong, & Lin, 2014). Learners believe online learning platforms are beneficial as it strengthens their research and clear the way for collaboration with teachers and classmates, that either leads to increased productivity or quality of learning and allows them to achieve their learning objectives whenever, wherever, and without constraint (Sabah, 2016).

As a reference to (Abu-Al-Aish, Love, & Learning, 2013), perceived easy to use is similar to perceived usefulness in the technology acceptance model and is defined as an individual’s level of belief that using the system will help them achieve their goals. Several empirical studies on the adoption electronic devices have discovered a strong relationship between perceived usefulness and online attitudes to use the system (Kumar, Chand, & technologies, 2019). Hence, the proposed model in this study will be:

**H2:** Perceived usefulness is positively influencing the attitude to use online learning platforms.

*The influence of perceived ease of use on students satisfaction and online learning attitude*

Students online attitude is essential to be investigated in educational environment fostered by the growth of many different types of electronic gadgets (Zhu, Zhang, Au, Yates, & development, 2020). Several studies have confirmed the e-learning efficacy on student’s behavior using electronic devices. Perceived ease of use is heavily overwhelmed by elements, including users’ attitudes toward e-learning and their contentment in using technology during the instructional process (Rhema, Miliszewska, & Szendur, 2013). By virtue of what a person feels at ease when using technological applications to suit their needs is referred to as perceived ease of use. It can be elucidated that when students perceive the benefits and effectiveness of e-learning then it will impact their technological acceptance toward the use of e-learning. Study Abu-Al-Aish et al. (2013) explained on the effect of social networking media adoption on students and teachers’ perception of the ease and usefulness of e-learning in university revealed that instructors serve a vital part in the technology integration of online learning. In other words, lecturers’ knowledge and their attitude while using the technology facilitate students ease of use of online learning.

The study suggests that in order to improve personnel attitude on the adoption of e-learning during Covid-19, the authors proposed different alternatives such as face-to-face instructions and encouraging to use dynamic interaction tools and activities to intrigue students' interest and participation in their e-learning (Ibrahim, Mutiarin, Purnomo, & Policy, 2021). To ensure a suitable working environment, students should get assistance from their families and institutional leaders. Another study by (Sun et al., 2008) also stated that teachers’ instruction is as important as the level of satisfaction of students.

**H3:** Perceived ease of use is positively influencing students satisfaction

Previous research confirmed this statement, Bataineh and Baniabdelrahman (2006) declared that not only students that accept e-learning technology but instructors as well can. It is further explained that instructors’ attitude holds a crucial
The Effect of Perceived Usefulness and Perceived Easy to Use on Student Satisfaction...  

contribution on e-learning success. Prior research has indicated that attitude is the most fundamental factor in any technological acceptance (Hussein, 2017). Akram, Aslam, Saleem, and Parveen (2021), investigated the factors that impact the academic personnel hurdles in public colleges in Pakistan in online teaching practices.

Therefore, it expressed an active and enthusiastic attitude for students during the e-Learning process. It was explained that the ease of use in web-based learning and its flexibility can lead to higher learning outcomes because flexibility is one of the best ways to meet their requirements, it's one of the best ways to learn. Hence, the proposed model in this study will be:  

**H4:** Perceived ease of use is positively influencing students online learning attitude

*The influence of attitude to use online learning on student satisfaction*

Satisfaction is described by (Kotler & Keller, 2012) as an individual's feeling of joy or regret arising from assessing an actual performance (outcome) of something in comparison to his or her expectations. Satisfaction is related to feelings of approval, enjoyment, comfort, pleasure, as well as excitement (Hoyer, Macinnis, & Pieters, 2001). The term satisfaction is actually influenced by a variety of things. Researchers such as Appuhamilage, Torii, and Development (2019) confirmed this statement by analyzing the effect of loyalty toward student satisfaction in higher education, the result revealed that satisfaction was indeed affected by a wide range of elements such as excellent service quality, good image and financial support. The findings pointed out that in order to improve student satisfaction, university administrators could rely on the services and funding assistance they supply, the institution's brand image in the minds of its students, and the benefits offered for the price paid for the university. Bray, Aoki, Dlugosh, and Learning (2008) examined a range determinant for learning satisfaction among Japanese e-learner.

The satisfaction of distance learners was assessed using five factors. The findings demonstrated that students were reasonably pleased throughout the online classes, with students who were able to deal with these kinds of adversity reporting higher levels of satisfaction. Sun et al. (2008) reported that student satisfaction toward e-Learning was depending on the instructors’ attitude regarding delivering the materials using technological tools. Students' perceptions of a program's effectiveness and easy to use, as well as their satisfaction, are influenced by technological design. Based on the same study, instructors' attitudes about e-Learning have a beneficial impact on student satisfaction. Students' motivation to continue their distant education would be constrained if they have a negative perception.

Study Joo, Lim, Kim, and education (2011) highlighted that in online institutions, where all teaching and learning are conducted online, learner satisfaction and persistence are considered essential success criteria. Similar research on factors impacting learner satisfaction in mobile learning. The findings confirmed previous studies’ result that social presence was the predictor of student satisfaction in online learning platforms. Student tend to have a promising attitude toward technological acceptance in e-learning use. Zhu et al. (2020) conducted research on university student online attitude and findings revealed that students' attitudes toward online learning were relatively favorable and improved after they completed courses. Four self-regulatory characteristics were found to be important drivers of participants’ continuing desire to learn online. Thus, the proposed model in this study will be:  

**H5:** Attitude to use is positively influencing student satisfaction in online learning.
Research Methods

Data collecting and Measurement
This study was conducted by questionnaires online via Googleform. The main survey questions consist of 16 items with measure of four constructs consisting of perceived usefulness, perceived easy to use, attitude to use online learning and student satisfaction (see figure 1).

The measurement of perceived usefulness consists of 4 statement items with 7 Likert scale. Perceived easy to use consists of 4 item statements using a 7 Likert scale. Attitude to use online learning consists of 4 statement items using a 7 Likert scale. Student satisfaction consists of 4 statement items using a 7 Likert scale.

Sampling dan respondent criteria
This study used a sample of 203 students from the Faculty of Economics and Business on Management Study Program, the Muhammadiyah Universities of Yogyakarta. We use sampling technique with a purposive sampling based on criteria in selecting respondents (Alam & Sayuti, 2011). The respondents of this study are still in semesters 1 and 3. According this study the researchers confirmed that the respondents who had only student in semesters 1 and 3 because the student taking learning with subject by lecturers and have used online learning media in a pandemic situation.

Validity and reliability test
This study testing the validity using Confirmatory Factor Analysis (CFA) with Structural Equation Modelling (SEM). Validity and reliability testing describe the value of the loading factor. To testing reliability at the value of Construct reliability (CR). Sekaran (2010) explain that item and loading factor more than 0.6 is valid. But if loading factor value less than 0.60 is not valid.

The result of validity and reliability test to explain loading factor, composite reliability and average variance extracted (AVE) can be describe as table below.
Table 1. Validity and Reliability Measure of Variable

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of item</th>
<th>Indicator</th>
<th>Loadings</th>
<th>Cronbach’s Alpha</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived use fullness</td>
<td>4</td>
<td>Ease to use of online networks learning</td>
<td>0.844</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Online networks increase the effectiveness</td>
<td>0.785</td>
<td>0.880</td>
<td>0.882</td>
<td>0.554</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value the benefits of online learning</td>
<td>0.805</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Online learning is advantageous</td>
<td>0.788</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived easy to use</td>
<td>4</td>
<td>Ease of completing lecture</td>
<td>0.837</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease of interaction with lecturers</td>
<td>0.714</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skills in following learning</td>
<td>0.801</td>
<td>0.857</td>
<td>0.874</td>
<td>0.562</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning in online networks is easy</td>
<td>0.749</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>4</td>
<td>Attitudes during online learning during a pandemic situation</td>
<td>0.740</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Efforts to find out the use of online learning</td>
<td>0.867</td>
<td>0.847</td>
<td>0.866</td>
<td>0.568</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Utilization of online learning</td>
<td>0.788</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Network learning is important</td>
<td>0.601</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Satisfaction</td>
<td>4</td>
<td>The quality of the learning process</td>
<td>0.793</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Online learning has been learned from the face-to-face version</td>
<td>0.861</td>
<td></td>
<td>0.872</td>
<td>0.559</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recommend online learning to other students</td>
<td>0.824</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recommend online classes to other students</td>
<td>0.650</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Result

The structural equation model results describe the hypothesis testing of the empirical research model. The model fit test shows good results as shown in Figure 2 (Chi-Square = 226.84, Prob = 0.000, $AGFI = 0.862$, $GFI= 0.899$, $CFI = 0.938$ and $RMSEA = 0.075$).

According to Figure 2, this study's estimated paths show significant results. The results also found that testing on H1 shows that perceived easy to use significantly positively affects perceived...
usefulness ($\beta = 0.362$, $p = 0.000 < 0.05$). Thus, H1 is accepted.

Tests on H2 show a significant positive effect between perceived usefulness and attitude to use online learning ($\beta = 0.320$, $p = 0.000 < 0.05$). Thus, H2 is accepted. Tests on H3 show a significant positive effect of perceived easy to use on student satisfaction ($\beta = 0.062$, $p = 0.443 > 0.05$). Thus, H3 is rejected. Tests on H4 show that the results of perceived enjoyment have a significant positive effect on attitude to use online learning ($\beta = 0.282$, $p = 0.000 < 0.05$). Thus, H4 is accepted. Finally, testing on H5 shows that attitude to use online learning has a significant positive effect on student satisfaction ($\beta = 0.396$, $p = 0.000 < 0.05$). Thus, H5 is accepted.

The following table shows the results of testing each research hypothesis from H1 to H5.

![Figure 2. Hypothesis Testing](image)

**Table 2. The Research Hypothesis Results**

<table>
<thead>
<tr>
<th>Description</th>
<th>Hypothesis</th>
<th>$\beta$</th>
<th>$p$-value</th>
<th>supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness $\rightarrow$ Satisfaction</td>
<td>H1</td>
<td>0.362</td>
<td>0.000</td>
<td>H1 is supported</td>
</tr>
<tr>
<td>Perceived usefulness $\rightarrow$ Attitude</td>
<td>H2</td>
<td>0.320</td>
<td>0.000</td>
<td>H2 is supported</td>
</tr>
<tr>
<td>Perceived easy to use $\rightarrow$ Satisfaction</td>
<td>H3</td>
<td>0.062</td>
<td>0.443</td>
<td>H3 is rejected</td>
</tr>
<tr>
<td>Perceived easy to use $\rightarrow$ Attitude</td>
<td>H4</td>
<td>0.282</td>
<td>0.000</td>
<td>H4 is supported</td>
</tr>
<tr>
<td>Attitude $\rightarrow$ satisfaction</td>
<td>H5</td>
<td>0.396</td>
<td>0.000</td>
<td>H5 is supported</td>
</tr>
</tbody>
</table>

*Notes: * $p < 0.05$, ** $p < 0.01$*
Discussion

The design of this study is to examine the influence of perceived usefulness, and perceived easy-to-use and Attitude to use online learning in the context of university student satisfaction oriented to online learning platforms at a private university in the Yogyakarta region.

The result improves the perceived easy-to-use impact significantly on the student satisfaction. This result supports a previous study stating that perceived easy-to-use positively impacts the student's perceived usefulness and satisfaction (Abu-Al-Aish et al., 2013). Moreover, Almaiah et al. (2021) stated that perceived easy-to-use positively influences perceived usefulness in mobile learning platforms. A similar result to this research by Elkaseh et al. (2016) revealed that perceived easy-to-use has a significant relationship with perceived usefulness. There are a lot of causes why perceived easy-to-use can influence students' perceived usefulness of online learning. First, perceived easy-to-use is based on the quality of content and services (Almaiah et al., 2021).

Once university students enjoy virtual learning portals which help them with their entire learning productivity, they improve their learning performance and usefulness. As per the analyses, online learning services need to be simple to use and usually require efforts to engage students intuitively in order to increase their contentment. Self-efficacy in an online learning environment, such as studying online, goal setting, and technology use can also impact student behavioral intention regarding the use of e-learning. Secondly, perceptions of the characteristics of technology vary from individual to individual with other individuals. Relative advantage, compatibility, complexity, trialability, and observability are among the five attributes of technological acceptance. The organization should pay attention to one of these dimensions of perceived easy-to-use to successfully implement the online learning systems with ease and useful to students. Trust and intrinsic motivation are not the main driving factors of effective e-learning but also performance-related outcomes and personal-related outcomes expectations (Almaiah et al., 2021; Joo et al., 2011).

Furthermore, in this study, perceived usefulness and easy-to-use significantly affected the Attitude to use online learning platforms during the COVID-19. The results are similar to previous researcher (Zhu et al., 2020), who explained that students online learning Attitudes were generally positive. Kumar et al. (2019) Kumar, B.A. also supports this research result and found a strong relationship between perceived usefulness and online attitudes to use the system. Sun et al. (2008) explained that the quality of teachers' instruction is just as essential as the amount of student satisfaction. As a result, it demonstrated an engaged and enthusiastic attitude toward students throughout the e-Learning process. The findings emphasized that the simplicity of use and flexibility of web-based learning could lead to better learning outcomes because flexibility is one of the best methods to satisfy their requirements and learn. According to the findings, to improve personnel attitudes toward e-learning adoption during Covid-19, the authors proposed a variety of options, including face-to-face instruction and encouraging students to use dynamic interaction tools and activities to pique their interest and participation in their e-learning (Ibrahim et al., 2021).

One of the main factors influencing student attitude during online learning is their perceived enjoyment. This study revealed that perceived enjoyment affects the Attitude to use online learning platforms. The outcomes are consistent with those of
previous researchers (Zhu et al., 2020), who discovered that there is a positive increase in students’ Attitude toward online learning as universities incorporate components that enable students’ conviction in using technology and can increase student satisfaction during the e-Learning period as it enhances the students’ learning experience. While Joo et al. (2011) explicated that students attending online classes will be independent in their studies for seeking knowledge and information without much assistance from lecturers or supervisors. The ability to comprehend and absorb information has grown increasingly important. Learners in our era, for example, are exposed to tons of knowledge and usually gain information outside the university. Several researchers have analyzed similar studies on the factors that impact students’ approval of using online learning technology. The findings indicate that perceived usefulness, perceived easy-to-use, and users’ intentions toward technology are all influenced by perceived enjoyment (Elkaseh et al., 2016).

Attitude to use online learning have a positive impact on student satisfaction. This result is similar to the one conducted by (Appuhamilage et al., 2019), who found that satisfaction was affected by a wide range of elements such as excellent service quality, good image, and financial support. In contrast, Sun et al. (2008) reported that student satisfaction toward e-Learning depended on the instructors’ Attitude regarding delivering the materials using technological tools. Students’ perceptions of a program’s effectiveness and ease of use and their satisfaction are influenced by technological design. Based on the same study, instructors’ attitudes about e-Learning have a beneficial impact on student satisfaction. Finally, Zhu et al. (2020) conducted research on university student online attitude and findings revealed that students’ attitudes toward online learning were relatively favorable and improved after they completed courses.

Four self-regulatory characteristics were found to be important drivers of participants’ continuing desire to learn online.

Implications and Limitations

Based on the findings and discussions, it is reasonable to state that managerial implications in this study define the following actions. First, in basic terms, the research findings provide valuable recommendations for the ministry of education and decision-makers in a university to evaluate and improve excellence of the learning system and understand factors with different dimensions for effectively using online learning platforms. Secondly, educational head of each university department must provide adequate financial and technological resources for correspondence course projects during the COVID-19 pandemic.

The priority of senior management will ensure more financial and technical resources to facilitate the smooth execution of the online learning platform project. Thirdly, the study findings demonstrate the importance of technology adoption in students' actual use of mobile learning platforms. As a result, the use of online learning platforms in universities should be supported by excellent technology infrastructure, which may raise students’ current usage of the online learning platform. Finally, the results of this paper can assist designers and engineers in generating virtual education platforms by offering refined learning materials relevant to participants’ insight, supporting numerous types of visual elements, and online forum with educators to respond students’ questions about lessons instructional content. These top-notch factors can increase student satisfaction and the use of online learning platforms.
There are some constraints reported in the present study. Fundamentally, the data were gathered from a single university in Yogyakarta and undergraduate and postgraduate students. This study was limited solely to online students because of the covid-19 situation and time limitations. Thus, this must be considered when generalizing the findings. Moreover, the sample size in this study is relatively small, making it hard to determine whether the outcome is genuinely accurate, and errors may occur. In addition, up to the present time, few studies have assessed the university student’s perception on online learning platforms in higher education; therefore, the result of this study cannot be generalized to other areas.

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