

EFFECT ICT ON E-LEARNING AND SCHOOL BRAND IMAGE

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ABSTRACT

This study aims to analyze the effect of information and communication technology on e-learning and school brand image. The research method uses a quantitative approach, the sample in this study is vocational school students, the data collection method uses a questionnaire, and the data analysis method uses Structural Equation Modeling. The results of data analysis show that e-learning is influenced by ICT and e-service quality. E-WOM and student satisfaction are influenced by e-learning, while school brand image is influenced by e-WOM and student satisfaction. This study contributes to the literature by developing a framework for responding to COVID-19.

KEYWORDS

ICT, e-service, e-information, e-learning, e-WOM, school brand image



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INTRODUCTION

The COVID-19 pandemic has posed a threat to various aspects of life, including economic, tourism, trade and education aspects (Andayani, 2021). The Covid-19 pandemic has indirectly required educators to find the best solutions in providing and providing services to students. The form of service to students can be in the form of providing learning materials through online media with the aim of avoiding direct contact between teachers and students and breaking the chain of transmission of COVID-19. Ota (2021) also stated that by implementing distance learning, it means that it can indirectly help to reduce the rate of virus spread.

Education plays an important role in aspects of life because through education the quality of human resources can be improved and developed (Ota, 2021). Self-improvement is accomplished by keeping up with technological advancements and being able to utilize and apply them so as not to create a gap between education and technology (Ota, 2021). Therefore, the use of technology in this case online learning media such as E-learning by students is one aspect that can help self-development to learn independently by not taking into account the space and time of learning (Isman, 2017) . However, online learning policies themselves have obstacles when applying them, such as human resources in this case teachers, parents and students who are not fully ready to face this situation (Azizi dan Yuningsih, 2020). Another obstacle is that students feel alone in learning because they do

not interact with friends and teachers, so that it affects the concentration of learning and the emotional level of students (Hidayatulah, et al., 2021).

In carrying out learning, a learning media is needed that can support the smooth teaching and learning activities that occur in the classroom. The media is a means or intermediary used to achieve a learning goal. The use of a media can help a teacher to further enrich, expand and even deepen the knowledge of a teacher. Creativity in using various learning media also has an impact on student motivation and learning outcomes (Ota, 2021). Therefore, it is anticipated that the usage of media will increase student learning outcomes since it can improve student learning processes, namely by enhancing student learning motivation (Aurora & Effendi, 2019). E-learning is one of the learning media utilized during the COVID-19 pandemic. E-learning is something that is delivered or cannot be delivered through the use of electronic technology for the purpose of education (Cheng, 2006; El-Seoud et al., 2014). In addition, E-learning is recognized as a significant instrument that can be utilized to boost student motivation and education (Mateo, et al., 2020; Harandi, 2015).

E-learning has grown to dominate the education business in the era of information and communication technologies. ICT combined with the quality of electronic services and e-information offers students numerous new advantages. According to Reily (2017), the relationship between service quality and student e-learning demonstrates that service quality is one of the primary e-learning factors. Student happiness lies at the heart of every instructional strategy. The level of student satisfaction is an indication that the received information and knowledge exceeds expectations. In this setting, e-learning can increase student efficiency by enhancing student learning progress. The greatest quality of e-learning education, according to Oduma et al. (2019), can help institutions increase student satisfaction.

Furthermore, word-of-mouth influences the school's reputation. In the digital age, E-WOM has a significant impact on the formation of school image (Shehzadi, 2021). E-WOM emphasizes the explicit interpersonal interactions that occur via the Internet. E-WOM, a sort of marketing, can facilitate the spread of direct messages. Although the concept is not unique, the rapidity with which a message can go viral renders it significant. Image de marque is a distinct set of consumer associations (Uppal et al., 2018). It is essentially a mental image that develops in the mind of the buyer over time. Many educational institutions rely on the credibility and value of accreditation to recruit students (Jayakumar and Ali, 2016). However, their vulnerability to e-WOM has increased as a result of their recent switch to online learning as a result of the COVID-19 issue. In light of the COVID-19 outbreak, the purpose of this study was to determine the effect of digital learning on student satisfaction and school brand image in educational institutions.

Due to the flow of information between specified parties to obtain knowledge and satisfy information needs in the education sector, the supply of information is one of the most important aspects of electronic services (Talebian, et al., 2014). One of the most frequent online activities is the acquisition of knowledge and information, and ICTs continue to improve students' academic performance. As a result of the COVID 19 pandemic, the global need for ICT is increasing, particularly in the realm of student education. Prior to COVID-19, ICT use in Indonesia was ubiquitous, but during the lockdown, virtually all educational institutions installed ICT and offered e-learning to students. During the lockdown, not just education but also other institutions utilized ICT to connect with employees and other business partners via online business meetings. Therefore, the use of ICT during COVID-19 in Indonesia has become a fundamental component of every institution in the nation (Ota, 2021). This increases the worldwide need for ICT in student education. Consequently, the following hypotheses are generated by this

research: (H1) Information and communication technology has a positive relationship with students' e-learning. E-learning tutorials, course materials, e-learning management, and service assistance affect student e-learning (Pham et al., 2019). Several studies have linked website quality to student achievement. The qualitative literature on web-based educational procedures shows that website quality is related to student learning requirements, that better education and web-based education systems are related to student learning satisfaction, and that web-based education systems are related to student learning satisfaction (Alkhattabi et al., 2011). Coronavirus also requires a global growth in web-based schooling, which may hinder student learning. This motivates researchers to study e-learning and electronic service quality. This study suggests an investigation of e-service quality for student e-learning. (H2) The quality of e-services has a positive relationship with student e-learning. Studies show that the better the e-information, the more effective e-learning for students. Comparing conventional services to web-based services shows that not all service quality parameters have the same influence on student services (Alkhalaf et al., 2013). Due to the corona virus, there is an urgent need for high-quality e-information that can enhance student e-learning. Multiple studies have demonstrated, within the context of education, that service quality characteristics have a substantial impact on overall service quality. Consequently, high-quality e-information is a crucial component of e-learning sessions that boost students' e-learning. On the basis of these considerations, this study suggests a hypothesis: (H3) The quality of e-information has a positive relationship with students' e-learning. Student happiness is a key indicator of the effectiveness of higher education. Student happiness is essential for all educational institutions in order to optimize their profitability through the formation and maintenance of behavioral attitudes and intents. Cognitive satisfaction and effective satisfaction are two types of satisfaction (Yilmaz, 2017). Effective student satisfaction occurs when the obtained information and knowledge is of the same caliber as the students' expectations and has a beneficial effect on the students' attitudes (Dominici and Palumbo, 2013). As in the instance of the coronavirus lockdown, this effective satisfaction can be diminished in the case of e-learning, so affecting the institution's reputation. Similarly, many universities adopt online learning, which might impair student satisfaction with the institution's reputation. However, effective e-learning has a beneficial effect on student satisfaction, and the following assumptions are tested in this study: (H5) Student e-learning has a positive relationship with student student satisfaction. WOM is routine customer communications about acquiring, using, or delivering a service. The World Wide Web has changed WOM into e-WOM (Wu et al., 2010). E-word-of-mouth is transmitted through web-based inventions. E-WOM mirrors offline WOM (Litvin et al., 2018). Online and offline word-of-mouth require credible information. e-WOM is important in schooling. Online educational content and practices have a big impact on students. E-learning can affect e-WOM. Study suggests a hypothesis. (H4) Student e-learning has a positive relationship with e-WOM. E-WOM has a substantial impact on the institution's reputation. E-WOM is not limited to any certain technologies or populations (Gupta and Harris, 2010). Universities rely on specific information sources for image (Yoo et al., 2013). This type of information enables students not only to acquire their education from the same website, but also to develop a school brand identity. By controlling brand expectations, administration narrows the gap between the school's image and students' perceptions of the school's brand image. The majority of schools have initiated online sessions that generate positive and negative e-WOMs that influence the school's brand image. This circumstance has also prompted researchers to investigate this factor, and the following hypothesis has been developed for this study. (H6) Student e-WOM has a positive relationship with the school's brand image. Students' decisions are heavily influenced by the school's reputation. Branding a school is a sophisticated marketing

strategy used to attract students and place the institution in competition. Azoury et al. (2014) claim that the implementation of an image branding strategy is necessary for school image branding in this highly competitive period. Thus, the picture demonstrates the school's capacity to address student needs, inspire confidence in the school's competence, and improve student services (Chen and Chen, 2014). However, the substitution of online sessions for physical classes may negatively impact student satisfaction. Schools have incorporated online classes for students, which has the potential to effect not only student learning, but also student satisfaction with the school's brand image. Consequently, this research generates the following hypotheses: (H7) Student satisfaction has a positive relationship with the school's brand image. Based on the results of previous research and the development of hypotheses, the model of this research can be seen in Figure 1.

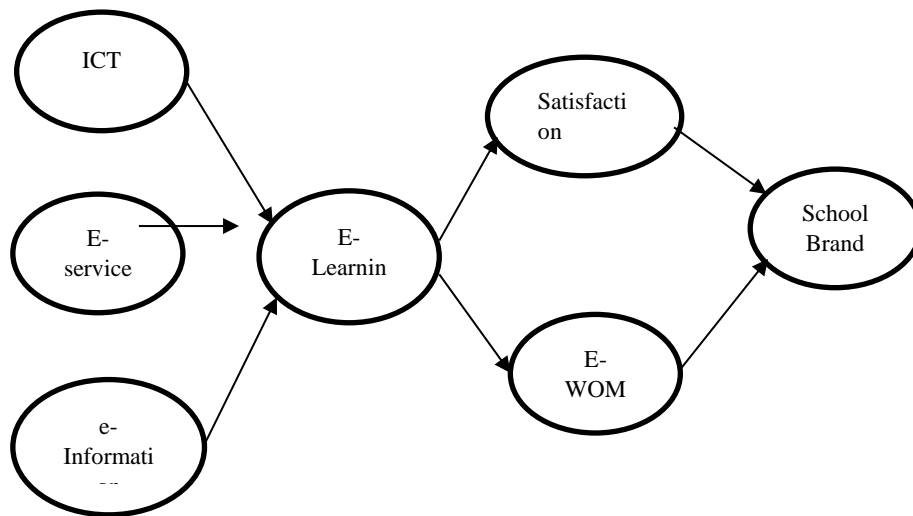


Figure 1. Conceptual Framework

RESEARCH METHOD

This study's target group was vocational high school students, and its sample consisted of students from SMK Bintang Nusantara, SMK Citra Medika, and SMK Mandala Bakti. A web-based questionnaire was used to collect information on those who have begun using online learning systems for continuing education. The individual is the unit of analysis, and the responders are students who participate in e-learning by attending online classes. An online questionnaire survey was used to obtain the data. To reach the majority of students at SMK Bintang Nusantara, SMK Citra Medika, and SMK Mandala Bakti, we distributed web links through WhatsApp Groups. We received a total of 129 replies to the survey, all of which were usable for data analysis.

This study's instrument was adopted and modified from previous research by Bhat and Bashir (2018). Information and communication technology orientation was measured by 13 items, with four items measuring profit, three measuring compatibility, three measuring ease of use, and three measuring perception. The electronic service quality scale consists of four dimensions and twelve items adopted by Parasuraman et al. (2005), including four items for efficiency, four for system availability, two for compliance, and two for privacy. In addition, nine criteria proposed by Zhou et al. (2014) are used to evaluate the quality of online content. From Udo et al (2011) study's five e-learning components were extracted. A four-item scale was used to measure e-WOM based on research by Lee et al. (2019). Five questions created by Headar et al. (2013) assess student

satisfaction. In conclusion, university brand image is measured using eight items modified from the research of Sultan and Wong (2019).

RESULT AND DISCUSSION

(1) Estimation and validation of measurement models Straub et al. (2004) advise that testing the measurement model comprises estimating the internal consistency and convergent, discriminant, and factorial validity of the instrument items. In PLS, factorial validity is determined when the square root of each Average variance extracted (AVE) construct's association with the other constructs is significantly stronger (Chin, 1998). Table 1 elucidates the factorial validity of the building model.

Table 1. Factor Validity

| | ICT | ESERV | EIQ | ELEARN | SAT | EWOM | IMU |
|--------|-------|-------|-------|--------|-------|-------|-------|
| ICT | 0.833 | | | | | | |
| ESERV | 0.682 | 0.869 | | | | | |
| EIQ | 0.442 | 0.631 | 0.897 | | | | |
| ELEARN | 0.686 | 0.649 | 0.335 | 0.930 | | | |
| SAT | 0.623 | 0.638 | 0.354 | 0.761 | 0.893 | | |
| EWOM | 0.621 | 0.720 | 0.448 | 0.622 | 0.637 | 0.896 | |
| IMU | 0.538 | 0.669 | 0.460 | 0.572 | 0.607 | 0.627 | 0.892 |

In PLS, discriminant validity was evaluated using two distinct approaches. First, by examining the cross-loading of constructs and sizes; and second, by comparing the square root of the AVE for each construct to the construct's correlation with other constructs in the model (Fornell and Larcker, 1981; Chin, 1998). All estimated constructs in the model met the discriminant validity criterion.

Table 2. Discriminant Validity

| Variabel | Composite Reliability | AVE | Factor Loadings | | | | |
|----------|-----------------------|-------|-----------------|-------|-------|-----|-------|
| ICT | 0,958 | 0,694 | OI1 | 0,875 | | | |
| | | | OI2 | 0,858 | | | |
| | | | OI3 | 0,858 | | | |
| | | | OI4 | 0,783 | | | |
| | | | OI5 | 0,802 | | | |
| | | | OI6 | 0,857 | | | |
| | | | OI8 | 0,856 | | | |
| | | | OI9 | 0,845 | | | |
| | | | OI12 | 0,754 | | | |
| | | | OI13 | 0,833 | | | |
| | | | E-SERV | 0,974 | 0,755 | SQ1 | 0,820 |
| | | | | | | SQ2 | 0,813 |
| | | | | | | SQ3 | 0,894 |
| SQ4 | 0,863 | | | | | | |
| SQ5 | 0,886 | | | | | | |
| SQ6 | 0,919 | | | | | | |
| SQ7 | 0,903 | | | | | | |
| SQ8 | 0,938 | | | | | | |
| SQ9 | 0,890 | | | | | | |
| SQ10 | 0,908 | | | | | | |
| SQ11 | 0,730 | | | | | | |
| SQ12 | 0,843 | | | | | | |
| E-IQ | 0,974 | 0,805 | IQ1 | 0,883 | | | |
| | | | IQ2 | 0,889 | | | |
| | | | IQ3 | 0,886 | | | |

| | | | | |
|------------|-------|-------|------|-------|
| | | | IQ4 | 0,896 |
| | | | IQ5 | 0,900 |
| | | | IQ6 | 0,881 |
| | | | IQ7 | 0,920 |
| | | | IQ8 | 0,906 |
| | | | IQ9 | 0,913 |
| E-LEARNING | 0,962 | 0,864 | LA1 | 0,909 |
| | | | LA2 | 0,943 |
| | | | LA3 | 0,925 |
| | | | LA4 | 0,942 |
| SAT | 0,951 | 0,797 | SAT1 | 0,774 |
| | | | SAT2 | 0,897 |
| | | | SAT3 | 0,929 |
| | | | SAT4 | 0,924 |
| | | | SAT5 | 0,930 |
| E-WOM | 0,942 | 0,803 | WOM1 | 0,874 |
| | | | WOM2 | 0,895 |
| | | | WOM3 | 0,896 |
| | | | WOM4 | 0,918 |
| IMU | 0,969 | 0,795 | IMU1 | 0,882 |
| | | | IMU2 | 0,875 |
| | | | IMU3 | 0,863 |
| | | | IMU4 | 0,868 |
| | | | IMU5 | 0,921 |
| | | | IMU6 | 0,887 |
| | | | IMU7 | 0,936 |
| | | | IMU8 | 0,901 |

A construct's measurement precision is related to its reliability. The application of construct validity to measurements between constructs. Two composite reliability metrics, internal consistency and AVE, are used to evaluate the composite reliability of an indicator block that assesses a construct. Internal consistency is the degree to which a group of indicators measuring the same latent construct are substantially connected and assess the same latent concept (Hair et al., 2010). All internal consistency measures were above the required threshold of 0.70 (Table 2), demonstrating sufficient reliability (Nunnally and Bernstein, 1994). The AVE value likewise above the minimum threshold of 0.5 (Fornell and Larcker, 1981; Chin, 1998) and ranged between 0.694 and 0.864. (Table 2). In general, the results of the measurement model support the factorial, convergent, and discriminant validity and reliability measures employed in this work.

(1) Goodness of Fit Model Structural model evaluation is done by looking at the model fit. The fit model is used with the aim of testing the overall level of suitability of the research model.

Table 3. Goodness of Fit Model

| Information | Value | Criteria | Conclusion |
|--|---------|----------|------------|
| Average path coefficient (APC) | P<0.001 | P<0.05 | Accepted |
| Average R-squared (ARS) | P<0.001 | P<0.05 | Accepted |
| Average adjusted R-squared (AARS) | P<0.001 | P<0.05 | Accepted |
| Average block VIF (AVIF) | 1,773 | ≤ 3,3 | Accepted |
| Average full collinearity VIF (AFVIF) | 2,604 | ≤ 3,3 | Accepted |
| Tenenhaus GoF (GoF) | 0,629 | ≥ 0,36 | Accepted |
| Simpson's paradox ratio (SPR) | 0,857 | ≥ 0,7 | Accepted |
| R-squared contribution ratio (RSCR) | 0,993 | ≥ 0,9 | Accepted |
| Statistical suppression ratio (SSR) | 1,000 | ≥ 0,7 | Accepted |
| Nonlinear bivariate causality direction ratio (NLBCDR) | 1,000 | ≥ 0,7 | Accepted |

On the basis of the results of the goodness-of-fit model testing, it can be determined that all tests are satisfactory, indicating that the model used in this study is appropriate or very well suited.

(1) Structural Model Results : The primary purpose of PLS is to minimize error (or maximize variance, as indicated) in all endogenous constructs. The structural model's results are summarized in Table 4.

Table 4. Results of Structural Equation Modeling

| | Path Coefficient | Sign Level | Hypothesis |
|----------------------------------|------------------|------------|-------------|
| Effect on E-Learning | | | |
| ICT | 0,456 | < 0,001 | H1 accepted |
| E-Service Quality | 0,346 | < 0,001 | H2 accepted |
| E-Information Quality | -0,030 | 0,368 | H3 Rejected |
| Effect on Satisfaction | | | |
| E-Learning | 0,767 | < 0,001 | H4 accepted |
| Effect on E-WOM | | | |
| E-Learning | 0,624 | < 0,001 | H5 accepted |
| Influence on School Image | | | |
| Satisfaction | 0,360 | < 0,001 | H6 accepted |
| E-WOM | 0,428 | < 0,001 | H7 accepted |

The results of the analysis indicate that ICT and E-service quality have a positive and statistically significant effect on E-learning, however E-Information Quality has no statistically significant effect on E-learning, thus proving hypothesis 1 and 1. The results of testing hypothesis 4 indicate that E-Learning has a positive and significant impact on satisfaction; therefore, hypothesis 4 is supported. The results of testing hypothesis 5 indicate that E-Learning has a positive and statistically significant influence on E-WOM; therefore, hypothesis 5 is supported. The sixth and seventh tests demonstrate that satisfaction and E-WOM have a positive and statistically significant impact on school image; thus, the sixth and seventh hypotheses are confirmed.

According to the findings, the structural model explained 54.2% of the variance in the E-Learning construct, 58.8% of the variance in the satisfaction construct, 58.8% of the variance in the E-WOM construct, and 49.3% of the variance in the school image construct. When the amount of variation explained for the primary dependent variable is greater than ten percent, the predictive value of the PLS model is deemed satisfactory, substantial, and significant (Falk and Miller, 1992).

This study gives proof that e-learning is an essential factor for providing education in emergency scenarios like as the COVID-19 pandemic. The study's findings demonstrate that ICT has a positive impact on the electronic learning of students. E-learning for students can be enhanced with improved ICT. Previous study also supports this result. According to Shaw and Marlow (1999), ICT has a significant role in promoting e-learning among students. Further research has demonstrated the good impact of ICT on e-learning among students (Supriadi and Sa'ud, 2017; Shehzadi, 2021).

In addition, the study's findings demonstrate that the quality of e-service has a good impact on e-learning promotion among students. This demonstrates that improved electronic service quality can motivate students to utilize the online learning system. This study's findings align with those of Nsamba (2019), who discovered that the quality of e-service had a direct impact on students' e-learning. The quality of e-services has a favorable impact on students' e-learning, as this study and a number of prior studies have demonstrated (Zeglat et al., 2016; Shehzadi, 2021). In contrast to prior research, the quality

of e-information did not have a significant influence in this study. This may be because the school did not provide ideal e-information. This contradicts prior study which concluded that e-information has a considerable positive influence on student learning (Mammo and Gulube, 2019; Shehzadi, 2021).

During COVID-19, E-WOM plays a significant role in schools; information published online via social media by students can affect school policy; therefore, schools must provide quality services to generate positive E-WOM. This study demonstrates that e-learning among students has a favorable impact on e-WOM and student happiness. Improved student e-learning systems have the potential to increase e-WOM and student satisfaction. This study confirms the findings of Le Hoanh et al. (2014), who discovered a substantial link between e-learning and e-WOM. These findings are also similar with the findings of Wu et al. (2010), which demonstrate that e-learning has a beneficial impact on student satisfaction. These results are also consistent with prior research (Nortvig et al., 2018; Shehzadi, 2021).

According to the findings of earlier studies, e-WOM and student happiness contribute significantly to the development of the school's brand image. The findings of this study reveal that the quality of e-WOM has a significant impact on the community's perception of the school's reputation. These findings are also consistent with the findings of prior studies, which discovered a significant association between e-WOM and brand perception (Nortvig et al., 2018; Shehzadi, 2021). Additionally, the current research demonstrates a significant correlation between student satisfaction and school image. This result is consistent with earlier research demonstrating that student satisfaction influences school image (Nortvig et al., 2018; Shehzadi, 2021).

CONCLUSION

The results of data analysis show that e-learning is influenced by ICT and e-service quality. E-WOM and student satisfaction are influenced by e-learning, while school brand image is influenced by e-WOM and student satisfaction. The current research makes a substantial contribution to the literature and practice, but it also has several drawbacks that could be addressed in future work. First, the findings of this study only apply to developing nations where internet education is in its infancy. Second, this study presents a foundation for online learning systems, however the implementation of online learning systems in schools faces various hurdles. Therefore, future research should focus on the challenges schools encounter with online learning. Thirdly, this study is based on a questionnaire survey; to obtain a clearer image of online learning, future research should include incorporate interviews with school and community leaders.

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