

Online Learning Quality, Satisfaction, and Word-of-Mouth Promotion

Mikhael Mikhael¹, Yohana Carolin¹, Yohanna Nathania¹, Bram Hadian²

¹ Graduate student in management, Business Faculty, Maranatha Christian University, Bandung, Indonesia

² Management Department, Business Faculty, Maranatha Christian University, Bandung, Indonesia

Correspondence: Bram Hadian, Management Department, Business Faculty, Maranatha Christian University, Jl. Prof. Drg. Suria Soemantri No. 65 Bandung 40164, Indonesia. Email: tan_han_sin@hotmail.com

Abstract

This study aimed to verify and analyze the two influences. The first was the effect of online learning quality (OLQ) on student satisfaction and word-of-mouth (WOM) promotion. The second was the impact of student satisfaction on WOM promotion. Then, we used the population of 137 students taking online classes during the COVID-19 pandemic at Indonesia's *Interkultural Edukasi* Partner (IEP) in Bandung to support this intention. Furthermore, we applied the Slovin formula with a 5% border of fault to obtain a sample size of 103. After getting it, the samples were taken by simple random sampling. Unfortunately, only 45 students responded by filling out the questionnaire distributed. As a result, this study utilized the structural equation model based on variance to examine the proposed hypotheses. After testing and discussing them, this research concluded that OLQ positively influenced student satisfaction, but OLQ did not. Besides, student satisfaction positively affected this promotion.

Keywords: Educational Institution, Online Learning Quality, Satisfaction, Word-of-Mouth Promotion

1. Introduction

Every company globally strives to face the competitive market in industry 4.0 successfully. To survive in this arena, companies need several unique platforms to offer their products to their market (Prasetyo & Sutopo, 2018). For example, by collaborating with Gojek or Grab, culinary business owners in Indonesia can sell their products to their customers through these online delivery applications. This collaboration is effective because the customers do not need to directly visit the business sites (Fridayani, Iqbal, & Atmojo, 2021).

Technology is being increasingly utilized today in the education sector in Indonesia as in the rest of the world, especially since the novel Coronavirus 2019 pandemic at the beginning of 2020 (Muhyiddin & Nugroho, 2021). As has been the case globally, this virus has already infected numerous people in Indonesia (Baraputri, 2021) by droplets, aerosols, and fomites when talking, breathing, coughing, or sneezing during face-to-face meetings (Jayaweera, Perera, Gunawardana, & Manatunge, 2020).

Furthermore, the Indonesian government required educational institutions to introduce online learning to reduce its spread. To comply with this requirement, education institutions immediately began to implement online learning through various meeting platforms such as Zoom Meeting, Google Classroom, Edmodo, and Microsoft Teams (Nuriansyah, 2020), as well as through a learning management system (Rahman, Arifin, & Al-Fuqron, 2019).

After the students, teachers, and lecturers have been vaccinated, the learning pattern changes from fully online learning to blended learning [see Supriyanto, Mulawarman, Soesanto, Sugiharto, and Hartini (2021)]. Training lecturers to utilize online platforms to teach their classes has been mandatory for each institution facilitating this composite pattern. Therefore, specified departments and personnel must be available to handle this training (Pham, Limbu, Bui, Nguyen, & Pham, 2019).

With online platforms and e-learning systems as the tangible features used for the fulfillment of service quality, educational institutions expected that students would be satisfied after using these applications, as demonstrated by several studies, such as Pham, Limbu, Bui, Nguyen, & Pham (2019), Tj and Tanurahrjo (2020), Puriwat and Tripopsakul (2021), and Shehzadi, Nisar, Hussain, Basheer, Hameed, and Chaudhry (2021). However, this result did not always occur. For example, Theresiawati, Seta, Hidayanto, and Abidin (2020) found that e-learning systems did not affect student satisfaction.

Similarly, studies examining the impact of online learning quality on word-of-mouth promotion (WOM) were inconsistent. For example, Kusuma, Yasmari, Agung, and Landra (2020) and Shehzadi et al. (2021) confirmed a positive impact in their research. Meanwhile, Meštrović (2016) found no relationship between service quality and WOM promotion by utilizing the role-related indicators of teaching and administrative staff members, campus image, environment and equipment, and teaching syllabus to measure this quality.

Intuitively, the influence of student satisfaction on WOM promotion should be positive, as displayed by Khraim (2011), Mulyana and Ayuni (2015), Meštrović (2016), Melastri and Giantari (2019), and Giantari, Yasa, Sukawati, and Setini (2021). Unfortunately, this relationship was still unproven as Kusuma et al. (2020) showed contradictory results: student satisfaction did not affect WOM promotion.

With the inconsistent evidence shown above, this study attempt to research and analyze the effect of online learning quality on student satisfaction and word-of-mouth promotion and the influence of student satisfaction on WOM promotion. As the object to be surveyed, the researchers use the students learning languages at Indonesia's *Interkultural Edukasi Partner* (IEP) in Bandung as one of the branches. IEP is a non-formal language course institution registered under *Yayasan Mitra Pengembangan Indonesia*. Besides Bandung, IEP has a branch in Baubau and Bali. The courses offered include Indonesian programs for foreigners, English, and local languages: Sundanese in the Bandung and Wolio in the Baubau. IEP uses the six-phase program as its primary learning method. Furthermore, IEP provides online learning since its primary target market consists of foreigners aboard to continue classes during the pandemic.

2. Theoretical Framework and Hypothesis Development

2.1. Online learning quality and satisfaction

In their study of 300 students in Vietnam, Pham et al. (2019) demonstrated that as the quality of online learning increased, so did student satisfaction. Tj and Tanurahrjo (2020) surveyed the 64 undergraduate students at Krida Wacana Christian University in Jakarta, Indonesia, as samples to analyze the impact of online learning quality on satisfaction. After testing the data, they verified a positive effect. This positive influence was also confirmed by Puriwat and Tripopsakul (2021) after investigating 185 university students in Bangkok, Thailand. In Pakistan, a similar result occurred after Shehzadi et al. (2021) investigated the relationship between digital learning and the satisfaction of 374 students. Based on this evidence, this study formulated the first hypothesis:

H₁: Online learning quality affected student satisfaction positively.

2.2. Online learning quality and word-of-mouth promotion

In their study investigating 91 customers of the regional development bank in Bali, Kusuma et al. (2021) showed that service quality influenced WOM promotion positively. Likewise, after testing the responses of 374 students in Pakistan, Shehzadi et al. (2021) confirmed the positive impact of online learning quality on word-of-mouth promotion. Based on these results, this study formulated the second hypothesis:

H₂: Online learning quality affected word-of-mouth promotion positively.

2.3. Satisfaction and word-of-mouth promotion

It is assumed that students will communicate positive news about an institution if academically satisfied. Through a survey of 447 students from Philadelphia, Applied Research, and Amman Private Universities, Khraim (2011) demonstrated that student satisfaction positively impacted word-of-mouth promotion. After investigating 115 students in an open university in Indonesia, Mulyana and Ayuni (2015) affirmed that student satisfaction positively affected this promotion. This propensity was also confirmed by Meštrović (2016) after studying 214 students of the Rijeka University in Croatia.

In a further study, Melastri and Giantari (2019) examined the relationship between student satisfaction and word-of-mouth promotion by surveying the students taking English for business classes at English First in Denpasar, Bali. After reviewing the responses, they concluded that the more satisfied, the greater the students' tendency to communicate their experience with their friends, family, etc. In another study, Giantari et al. (2021) supported this finding as a result of investigating 260 students from state and private universities in Bali. Based on this evidence, this study formulated the third hypothesis:

H₃: Satisfaction affected word-of-mouth promotion positively.

2.4. Research Model

By formulating the hypotheses in this study, the research model was depicted in Picture 1.



Picture 1: Research Model

3. Research Method

3.1. Variable measurement

Based on Picture 1, this study used online learning quality as the exogenous variable by referring to three dimensions and their indicators in Pham et al. (2019). Because the institution where this research took place did not provide an e-learning system yet, the researchers removed the e-learning system as a dimension when measuring online learning quality. Therefore, two relevant dimensions were investigated: (1) instructors and course contents and (2) administration and support division (see Table 1).

Table 1: Online learning quality with the relevant dimensions and indicators

Dimension	Indicators	Source
Instructor and course substances (ICS)	The online instructors are well-informed in their field (ICS1). The online course content is easy to use and put into practice (ICS2). The online course content motivates me to learn and study (ICS3). The difficulty and length of the assessments given are reasonable (ICS4). The instructors respond promptly to my needs and questions (ICS5). The instructors consistently provide outstanding lessons (ICS6). The instructors plan and organize the content of the lessons well (ICS7). The instructors create a learning environment that stimulates me to be actively involved in sessions interactively (ICS8). The instructors focus on my needs and keep me interested in the online lessons (ICS9). The online course materials are beneficial to me (ICS10). The online course materials are up-to-date and appropriate for online learning (ICS11). The duration and difficulty of tasks assigned are reasonable (ICS12).	Pham et al. (2019)
Administrating and supporting division (ASD)	The administrative service division of the institution assists with facilitating online learning for me (ASD1). The administrative staff members keep me updated with the information I need to participate effectively in online learning (ASD2). The administrative staff members punctually assist me (ASD3). The administrative staff members provide exceptional service (ADS4). The administrative staff members recognize my needs (ADS5). The administrative staff members pay personal attention to me and my needs (ADS6). The administrative staff members have convenient working hours to serve; therefore, I can contact them if needing their assistance (ADS7).	

Furthermore, student satisfaction (SS) was treated by modifying the number of indicators utilized by Puriwat and Tripopsakul (2021) from four to three as the first endogenous variable:

1. The online learning platform used by *Interkultural Edukasi* Partner met my expectations during the Covid-19 pandemic (SS1).
2. The online learning platform provided by *Interkultural Edukasi* Partner suited my needs and situation during the Covid-19 pandemic better than onsite learning (SS2).
3. I enjoyed using the online learning platform provided by *Interkultural Edukasi* Partner during the Covid-19 pandemic (SS3).

Finally, word-of-mouth promotion was used as the second endogenous variable. Three of six positive indicators found in Goyetee, Ricard, Bergeron, and Marticotte (2010) were used to measure this variable. This method was chosen because of the similar content in the indicators. The indicators utilized were as follows.

1. I would recommend studying at *Interkultural Edukasi* Partner to my relatives and friends due to my online learning experience (WOM1).
2. I would always speak positively about *Interkultural Edukasi* Partner to my relatives and friends (WOM2).
3. I am grateful to be a learner at *Interkultural Edukasi* Partner (WOM3).

3.2. Population and Sample

The population for this research was the active students using online learning through *Interkultural Edukasi* Partner, Indonesia, in 2022. Based on the institutional database, the population size (N) was 137. Moreover, the

Slovin formula with the 5% error margin (e) in the first equation, cited from Suliyanto (2009), was applied to obtain the sample size.

$$n = \frac{N}{1 + Ne^2} \quad (1)$$

Applying this formula, the sample size was $\frac{137}{1 + 137(5\%)(5\%)} = \frac{137}{1.3425} = 102.04 \approx 103$ students. After obtaining this number, a simple random sampling method was used.

3.3. Method to collect the data

Following Hartono (2012), this study used a survey technique to collect the responses by distributing questionnaires with closed questions to the students. Also, mentioning Hartono (2012), the five-point Likert scale from significantly disagree to agree was utilized to measure the answers to the questions.

3.4. Method to analyze the data

Because the sample size was between 30 and near 100, the structural equation model (SEM) based on variance was utilized. Moreover, to describe the relationship between the variables used in the first picture, two related equations were used:

$$SS = \gamma_1 OLQ + \zeta_1 \quad (2)$$

$$WOM = \gamma_2 OLQ + \beta_1 SS + \zeta_2 \quad (3)$$

Before estimating the path coefficients: γ_1 , γ_2 , and β_1 , answers to the items needed to be validated and met the reliability test. Moreover, to check the validity, the confirmatory factor analysis was utilized, referencing Ghazali (2014) and Sholihin and Ratmono (2013):

- For the first-order model, if the loading factor exceeded 0.5, the answer to the item was valid, and vice versa. If lower than 0.5, the answer was invalid, and the related item must be removed.
- The loading factor needed to be available for the second-order model consisting of dimensions and indicators. If the loading factor was higher than 0.5, the answer to the item was valid, and the dimension could reflect the latent variables.

Moreover, to detect the reliability, this study used Cronbach Alpha and composite reliability coefficients with the cut-off point of 0.7. If these coefficients were higher than this point, the respondent answers were reliable because of consistency (Sholihin & Ratmono, 2013).

Because of the variance-based SEM, the model assessment based on f-square, R-square, and Q-square had to be executed by following this cut-off point (see Ghazali, 2008):

- If the f-square was 0.02, 0.15, and 0.35, the partial effect of explanatory variables was small, medium, and big.
- If R-square was 0.67, 0.33, and 0.19, the contribution of explanatory variables was strong, moderate, and weak.
- If Q-square was more significant than 0, the model had a predictive ability.

4. Results and Discussion

4.1. The demographic features

The survey was conducted in May 2022, and 45 students responded; thus, the response rate was $45/103 = 43.96\%$. The demographic features containing gender and age, and academic characteristics, such as entrance year and current phase, were noted in Table 2.

Table 2: The demographic and academic features of the students participating in this survey

Demographic Features	Description	Total	Percentage
Gender	Males	17	37.78%
	Females	28	62.22%
Age	20	2	4.44%
	21-30	9	20.00%
	31-40	18	40.00%
	41-50	7	15.56%
	51-60	7	15.56%
	61-66	2	4.44%
Academic Features	Description	Total	Percentage
Entrance year	2012	3	6.67%
	2016	2	4.44%
	2018	2	4.44%
	2019	6	13.33%
	2020	11	24.44%
	2021	15	33.33%
	2022	6	13.33%
Current phase	One	3	6.67%
	Two	8	17.78%
	Three	8	17.78%
	Four	19	42.22%
	Five	6	13.33%
	Six	1	2.22%

4.2. The Instrument Examination Result

To detect the validity and reliability of answers, we used Smart PLS, as Ghazali (2008) suggested. In the first step, after performing the confirmatory factor analysis, invalid responses were obtained from students to indicators ASD7, ICS1, and ICS4, displayed by the loading factor of 0.310, 0.480, and 0.497. Following Sholihin & Ratmono (2013), these answers must be removed because of below 0.5. After that, we retested this validity and confirmed that the responses from students to the rest of the items (ICS, ASD, SS, and WOM) were valid, as reflected by the loading factor above 0.5, as seen in Table 3 in Panel A. Also, we got that the loading factor for the two dimensions of online learning quality was higher than 0.5: 0.946 for LV_ICS and 0.898 for LV_ASD: These dimensions reflected online learning quality well.

Table 3: Final Validity and Reliability Examinations

Panel A. Validity Testing Result by Confirmatory Factor Analysis					
Indicator/Dimension	Loading factor				
	ICS	ASD	OLQ	SS	WOM
ICS2	0.759	-	-	-	-
ICS3	0.823	-	-	-	-
ICS5	0.521	-	-	-	-
ICS6	0.776	-	-	-	-
ICS7	0.773	-	-	-	-
ICS8	0.862	-	-	-	-
ICS9	0.861	-	-	-	-
ICS10	0.876	-	-	-	-
ICS11	0.667	-	-	-	-
ICS12	0.750	-	-	-	-

Table 3: Final Validity and Reliability Examinations

Panel A. Validity Testing Result by Confirmatory Factor Analysis					
Indicator/Dimension	Loading factor				
	ICS	ASD	OLQ	SS	WOM
ASD1	-	0.913	-	-	-
ASD2	-	0.791	-	-	-
ASD3	-	0.763	-	-	-
ASD4	-	0.810	-	-	-
ASD5	-	0.892	-	-	-
ASD6	-	0.855	-	-	-
LV_ICS	-	-	0.946	-	-
LV_AS	-	-	0.898	-	-
SS1	-	-	-	0.917	-
SS2	-	-	-	0.889	-
SS3	-	-	-	0.913	-
WOM1	-	-	-	-	0.904
WOM2	-	-	-	-	0.926
WOM3	-	-	-	-	0.938
Panel B. Reliability Testing Result by Cronbach Alpha and Composite Reliability Analyses					
Dimension/Variable	ICS	ASD	OLQ	SS	WOM
Cronbach Alpha	0.923	0.915	0.943	0.892	0.918
Composite reliability	0.936	0.934	0.950	0.932	0.945

Source: Adjusted Output of Smart PLS

Next, the Cronbach Alpha resulted from the reliability detection for accurate answers to ICS, ASD, OLQ, SS, and WOM was above 0.7: 0.923, 0.915, 0.943, 0.892, and 0.918, and composite reliability for ICS, ASD, OLQ, SS, and WOM was higher than 0.7: 0.936, 0.934, 0.950, 0.932, and 0.945 (see Panel B). Since this result was attained, the responses are consistent; hence, the reliability test was achieved.

4.3. The assessment of the estimated model

An assessment of the model was essential before estimating the path coefficients and their significance. Consequently, the f-square, R-square, and Q-square scores must be calculated as noted in Table 4:

- The f-square score for the partial influence of OLQ on SS was 0.509, meaning that the OLQ impact on SS was enormous. Meanwhile, the f-square scores for the partial effects of OLQ and SS on WOM were 0.002 and 0.3714, indicating that the relationship between OLQ and WOM was weak, but the relationship between SS and WOM was substantial.
- The R-square for $SS = f(OLQ)$ was 0.509 and for $WOM = f(OLQ, SS)$ was 0.454. Because these values exceeded 0.35, the impact of all explaining variables was moderate.
- The Q-square for $SS = f(OLQ)$ was 0.396 and for $WOM = f(OLQ, SS)$ was 0.288. These values exceeded 0; thus, the model could predict student satisfaction and WOM.

Table 4: The measurement to assess the model

Equation	Causal relationship	f-square	R-square	Q-square
$SS = f(OLQ)$	$OLQ \rightarrow SS$	0.509	0.509	0.396
$WOM = f(OLQ)$	$OLQ \rightarrow WOM$	0.002	0.454	0.288
	$SS \rightarrow WOM$	0.371		

Source: Adjusted Output of Smart PLS

4.4. The model estimation result

The adjusted Smart PLS output was shown in the model estimation in Table 5. This output showed that the probability of the t-statistic for the path coefficient related to hypotheses one, two, and three was 0.000, 0.858, and 0.006, respectively. Based on these results, it could be stated that:

- The positive effect of OLQ on SS and SS on WOM was significant because each probability was below a 5% significance level.
- The positive effect of OLQ on WOM is insignificant because the probability exceeded this 5% level.

Table 5: The estimation of path coefficients and their significance associated with the examination of the hypothesis

Hypothesis	Causal association	Path Coefficient	Standard deviation	t-statistic	Probability
I	OLQ → SS	0.714	0.081	8.861	0.000
II	OLQ → WOM	0.044	0.246	0.179	0.858
III	SS → WOM	0.642	0.233	2.759	0.006

Source: Adjusted Output of Smart PLS

4.5. Discussion

This study showed that online learning quality significantly positively affected student satisfaction concerning hypothesis one. Based on this evidence, this study result was confirmed by Pham et al. (2019), Tj and Tanuraharjo (2020), Puriwat and Tripopsakul (2021), and Shehzadi et al. (2021). The success and quality of online learning, in turn, could not be separated from the quality of the lecturers or instructors who provided the online instruction and their teaching materials. In this study, the loading factor of ICS5 was the lowest: 0.521 (see Table 3 in Panel A). This item referred to the prompt response of lecturers or instructors to students' needs. In other words, most students assumed that lecturers or instructors responded slowly to the needs of students. The same situation was supported by Cahyawati and Gunarto (2020) as one of the obstacles to online learning. To overcome it, the lecturers must personally understand the characters of each student by providing extra time outside their online classes.

When testing hypothesis two, this study found that online learning quality did not affect word-of-mouth promotion. In contrast, after examining hypothesis three, student satisfaction significantly and positively impacted word-of-mouth promotion. Statistically, it showed the mediating effect of student satisfaction on the relationship between online learning quality and word-of-mouth promotion. This communication would become an effective promotion tool if the students were satisfied with the learning services. The absent impact of online learning quality on WOM promotion was confirmed by Kusuma et al. (2020). However, the positive effect of student satisfaction on WOM promotion was verified by Khraim (2011), Mulyana and Ayuni (2015), Meštrović (2016), Melastri and Giantari (2019), and Giantari et al. (2021).

5. Conclusion

This study aimed to investigate and analyze the influence of online learning quality on student satisfaction and word-of-mouth promotion and the impact of student satisfaction on word-of-mouth promotion. After analyzing the survey responses of the students studying at *Interkultural Edukasi* Partner in Indonesia, this study found that online learning quality positively influenced student satisfaction; however, online learning quality did not. Meanwhile, student satisfaction positively affected this promotion.

Although successfully proving the relationship between online learning quality and student satisfaction and the association between this satisfaction and word-of-mouth promotion, this study still had limitations: the small sample size and the few variables utilized. Concerning the small sample size, further research is needed within educational institutions having larger student populations, such as over 200 students, to confirm and verify the

results and conclusions better than this study. Furthermore, to overcome a few variables, future research could add some variables, for instance: institutional image and perceived value, as the antecedence of student satisfaction and word-of-mouth promotion.

References

- Baraputri, V. (2021, July 6). *Dying alone in Indonesia's grim battle with Covid-19*. Retrieved May 1, 2022, from <https://www.bbc.com/news/world-asia-57830770>
- Cahyawati, D., & Gunarto (2020). High educational student perception of online learning during the Covid 19 pandemic: Obstacles, agreement level, materials, loading tasks, presence, and explanation of the lecturers. *Jurnal Inovasi Teknologi Pendidikan*, 7(2), 150-161. <https://journal.uny.ac.id/index.php/jitp/article/view/33296>
- Fridayani, H. D., Iqbal, M. & Atmojo, M. E. (2021). Cloud kitchen: Strategy for Indonesian culinary business (SMEs) growth during and post-pandemic era. *Management Research and Behavior Journal*, 1(2), 41-46. <https://ojs.unimal.ac.id/mrbj/article/view/5128>
- Ghozali, I. (2008). *Structural Equation Modeling: Alternative Method by Partial Least Square* (2 ed.). Semarang: Badan Penerbit Universitas Diponegoro.
- Ghozali, I. (2014). *Structural Equation Model: Concepts and Their Application by AMOS 22.0*. Semarang: Badan Penerbit Universitas Diponegoro.
- Giantari, I. G. A. K., Yasa, N. N. K., Sukawati, T. G. R., & Setini, M. (2021). Student satisfaction and perceived value on word of mouth (WOM) during the COVID-19 pandemic: An empirical study in Indonesia. *Journal of Asian Finance, Economics, and Business*, 8(6), 1047-1056. <https://doi.org/10.13106/jafeb.2021.vol8.no6.1047>
- Goyette, I., Ricard, L., Bergeron, J., & Marticotte, F. (2010). e-WOM scale: Word-of-mouth measurement scale for e-services context. *Canadian Journal of Administrative Sciences*, 27(1), 5-23. <https://doi.org/10.1002/cjas.129>
- Hartono, J. (2012). *Business Research Methodology* (5 eds.). Yogyakarta: Badan Penerbit Fakultas Ekonomi Universitas Gadjah Mada.
- Jayaweera, M., Perera, H., Gunawardana, B., & Manatunge, J. (2020). Transmission of COVID-19 virus by droplets and aerosols: A critical review on the unresolved dichotomy. *Environmental Research*, 188, 109819. <https://doi.org/10.1016/j.envres.2020.109819>
- Khraim, H. S. (2011). The willingness to generate positive word of mouth marketing: The case of students in private universities in Jordan. *Pertanika Journal of Social Sciences & Humanities*, 19(2), 273-289. https://myjurnal.mohe.gov.my/filebank/published_article/9729/1.pdf
- Kusuma, I. G. A. E. T., Yasmari, N. N. W., Agung, A. A. P., & Landra, N. (2020). When satisfaction is not enough to build a word of mouth and repurchase intention. *Asia-Pacific Management and Business Application*, 10(1), 1-20. <https://apmba.ub.ac.id/index.php/apmba/article/view/349>
- Melastri, K., & Giantari, I. G. A. K. (2019). Effect of service quality, company image, and customer satisfaction in word of mouth. *International Research Journal of Management, IT & Social Sciences*, 6(4), 127-134. <https://doi.org/10.21744/irjmis.v6n4.666>
- Meštrović, D. (2016). The impact of service quality on students' satisfaction and the word-of-mouth: the case of the University of Rijeka departments. *The 2016 Entrenova Conference Proceedings* (pp. 440-445). <https://dx.doi.org/10.2139/ssrn.3282466>
- Muhyiddin, M. & Nugroho, H. (2021). A year of Covid-19: A long road to recovery and accelerating Indonesia's development. *The Indonesian Journal of Development Planning*, 5(1), 1-19. <https://doi.org/10.36574/jpp.v5i1.181>
- Mulyana, A., & Wahyuni, D. (2015). The impact of institution image and student satisfaction on word of mouth. *Manajemen & Bisnis Berkala Ilmiah*, 14.2(3), 151-158. <https://www.journalmabis.org/mabis/article/download/319/226>
- Nuriansyah, F. (2020). The effectiveness of online media utilization to elevate the students' learning outcome taking academic economics when the COVID-19 pandemic starts. *Jurnal Pendidikan Ekonomi Indonesia*, 1(2), 61-65. <https://ejournal.upi.edu/index.php/JPEI/article/download/28346/12840>
- Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality affect student satisfaction and loyalty? *International Journal of Educational Technology in Higher Education*, 16(7). <https://doi.org/10.1186/s41239-019-0136-3>
- Prasetyo, H., & Sutopo, W. (2018). Industry 4.0: Aspect of classification review and directions for research development. *J@ti Undip: Jurnal Teknik Industri*, 13(1), 17-26. <https://doi.org/10.14710/jati.13.1.17-26>

- Puriwat, W., & Tripopsakul, S. (2021). The impact of e-learning quality on student satisfaction and continuance usage intentions during COVID-19. *International Journal of Information and Education Technology*, 11(8), 368-374. <https://doi.org/10.18178/ijiet.2021.11.8.1536>
- Rahman, A. A., Arifin, M. A., & Al-Fuqron, A. (2019). Adopting learning management system in Indonesian higher education: The encountering challenges to the transformation. *Asian EFL Journal Research Articles*, 23(3.4), 83-97. <https://www.elejournals.com/1963/asian-efl-journal/asian-efl-journal-volume-23-issue-3-4-may-2019>
- Shehzadi, S., Nisar, Q.A., Hussain, M.S., Basheer, M.F., Hameed, W.U., & Chaudhry, N.I. (2021). The role of digital learning toward students' satisfaction and university brand image at educational institutes of Pakistan: a post-effect of COVID-19. *Asian Education and Development Studies*, 10(2), 276-294. <https://doi.org/10.1108/AEDS-04-2020-0063>
- Sholihin, M., & Ratmono, D. (2013). *The SEM-PLS Analysis by Warp PLS 3.0 for Non-Linear Relationship in Social and Business Research* (1 eds.). Yogyakarta: Penerbit ANDI.
- Suliyanto, S. (2009). *Business Research Method* (2 eds.). Yogyakarta: Penerbit ANDI.
- Supriyanto, A. Mulawarman, M., Soesanto, S., Sugiharto, D. P. Y., Hartini, S. (2021). Blended counseling as a solution for developing mental health and understanding herd immunity for society. *KONSELI: Jurnal Bimbingan dan Konseling (E-Journal)*, 8(2), 169-180. <https://doi.org/10.24042/kons.v8i2.10127>
- Theresiawati, T., Seta, H. B., Hidayanto, A. N., & Abidin, Z. (2020). Variables affecting e-learning services quality in Indonesian higher education: Students' perspectives. *Journal of Information Technology Education*, 19, 259-286. <https://doi.org/10.28945/4489>
- Tj, H. W., & Tanurahrjo, H. H. (2020). The effect of online learning service quality on student satisfaction during the COVID19 pandemic in 2020. *Jurnal Manajemen Indonesia*, 20(3), 240-251. <https://doi.org/10.25124/jmi.v20i3.3520>