International Journal of Evaluation and Research in Education (IJERE)
Vol. 13, No. 4, August 2024, pp. 2791~2800
ISSN: 2252-8822, DOI: 10.11591/ijere.v13i4.27342

Factors antecedents of student learning satisfaction: evidence of online learning in Indonesia

Ida Bagus Putu Puja[1], Anak Agung Gede Agung[2], I Gusti Ketut Arya Sunu[3], I Putu Wisna Ariawan[4]
Postgraduate, Universitas Pendidikan Ganesha, Bali, Indonesia

Article Info

Article history:

Received Apr 26, 2023
Revised Jun 30, 2023
Accepted Jul 10, 2023

Keywords:

Learning motivation
Learning satisfaction
Online learning
Social media use
Teacher competence

ABSTRACT

COVID-19 has had a broad impact on learning in schools. There is a change in the learning model in online mode, this change also affects changes in student learning behavior including how to increase student learning satisfaction through online learning. Many studies have discussed online learning, but it is still limited to how student learning satisfaction is formed during online learning. This study examines the effect of perceived service quality, social media utilization, teacher techno-pedagogical competencies, and students' motivation to learn online on student learning satisfaction. A total of 345 state vocational school students in Gianyar Regency, Bali, Indonesia were involved in this study. Structural Equation Modeling (SEM) analysis was used to test the hypothesis of this study. The results of the study show that students' online learning satisfaction is significantly influenced by the quality of educational services and students' online learning motivation. Meanwhile, other antecedent factors such as the use of social media and teacher competence proved to not affect student learning satisfaction. This study also found that students' learning motivation was influenced by the quality of educational services. Meanwhile, the factors of using social media and teacher competency did not significantly influence student learning motivation. Lastly, this study also revealed that students' online learning motivation proved to have no role as a mediator on the effects of quality of education services, use of social media, and teacher competency on the learning satisfaction of vocational school students.

Corresponding Author:

Ida Bagus Putu Puja
Postgraduate, Universitas Pendidikan Ganesha
Singaraja, Bali, 81116, Indonesia
Email: putupujaidabagus@gmail.com; bagus.puja@undiksha.ac.id

1. INTRODUCTION

The COVID-19 pandemic has had a devastating impact on all sectors including the education sector [1]. The existence of a policy limiting direct physical interaction during COVID-19 has encouraged various schools to develop distance learning patterns [2]. Implementation of measures by schools and government to continue the learning process through online platforms. Since the outbreak of the COVID-19 pandemic spread in March 2020 in Indonesia, the government decided to stop teaching and learning activities to break the chain of transmission of the COVID-19 virus. Circular Letter No. 4 of 2020 from the Minister of Education and Culture recommends that all activities in educational institutions keep a distance and that all materials delivery is delivered to each other's homes. This government decision causes all teaching and learning activities to be carried out online or commonly known as distance learning. This shift in methods is driving an unprecedented change in the educational landscape. The transition to distance education drastically changes the everyday lives of students, teachers, and their families. There are many studies

examining distance learning during COVID-19 [3]–[7]. Even the effectiveness of distance learning also needs to be evaluated by the government [8], [9].

This condition poses new challenges for education in Indonesia, especially to develop effective distance learning. Various media such as WhatsApp, Google Classroom, Edmodo, and other online learning applications. teachers use to implement distance education. These various learning media are a means for teachers to communicate, give and check student assignments, send video links to support learning and provide subject matter for students. Of course, adequate devices are needed to be able to access all of these applications, such as computers, mobile phones, and laptops, and the availability of an internet network. Satisfaction is undeniably considered one of the main considerations in assessing the efficiency and effectiveness of any business. The theory of motivation confirms the assumption that satisfaction is related to the motivation needed to be successful [10], [11]. Satisfaction serves as a good indicator of student effectiveness which means that a high level of learning satisfaction will ultimately lead to a good emotional and mental state of students. Satisfaction leads to positive behavior while studying, dissatisfaction will result in negative behavior.

Satisfaction is one form of student learning success. Interaction between students and teachers, subject matter, and internet self-efficacy determine student satisfaction [12]. Student satisfaction is important in the evaluation of distance learning because it is related to the quality of online learning and student performance. Learning satisfaction is an index to evaluate student learning outcomes and is also one of the most important indicators of teaching quality [10], [13], [14]. Student learning satisfaction in distance learning cannot be measured because direct interaction does not occur. Generally, teachers interact through the WhatsApp Group, to convey assignments and information related to the school. Often the teacher gives assignments without first delivering an explanation of the material. This situation can lead to dissatisfaction for students, because external sources sometimes cannot provide the correct answer.

Learning by utilizing technology is nothing new in the world of Indonesian education. Challenges in the global era require students to master technology, be creative, have high motivation and passion for learning, and be able to innovate. Student interaction behavior in learning activities (less/intense) affects student achievement, motivation, and independent learning [15]. Motivation is a crucial factor in online learning. Student motivation is very important for cognitive engagement in a long and continuous educational process. The convenience and flexibility of online learning have an important influence on students' motivation to study online. Students are forced to study independently when face-to-face class instruction is not available or not possible for various reasons. Students are more likely to be more motivated to learn independently if they feel the learning objectives are more relevant, and competence in using technology is higher [16]. Before the COVID-19 pandemic, the problem of independent online learning motivation had never been touched by researchers. Especially because education in Indonesia still uses the traditional face-to-face system.

The traditional learning environment is bound by the location and presence of the teacher and students, is presented directly, is controlled by the teacher, and uses a linear teaching method [17]. The quality of student achievement is strongly influenced by the teaching and classroom environment, student motivation, and emotional and cognitive factors. Service quality is generally associated with marketing research. The concept of service quality that is widely used is SERVQUAL [18] and SERVPERF [19]. Service quality determines the ability of schools to compete in the world of education. To compete in the world of education, schools must have an advantage compared to other schools. The thing that becomes a concern in accepting this concept is that marketing is oriented to business, while the essence of education is to provide knowledge and skills. This is of course different if educators understand that marketing also has elements of providing the best service for consumers, in this case, students. Students are the main customers in educational institutions, students need a suitable environment to create a good learning atmosphere [20]. Service quality assessment is a cognitive process, meaning that service quality assessment is a psychological result of perception, learning, reasoning, and understanding of service attributes [21].

In addition, student satisfaction with distance learning during COVID-19 was also influenced by internet use, especially the use of social media. Informal learning through social media can provide opportunities to increase student engagement in formal social learning settings. Online social networking sites can provide teachable moments and enhance student learning [18]. Student learning outcomes and teaching effectiveness must be assessed to determine the consequences of using social media for learning [22]. Learning outcomes, such as grades and student satisfaction are reported for evaluation purposes, as it is known that student satisfaction and learning outcomes are related [23]. Another important factor that affects student satisfaction is the quality of teaching conducted by the teacher. Teachers have an important role to play in developing awareness about the affordability of technical and pedagogical tools and resources, as well as their ability to use technology effectively in the classroom [24]. The empirical evidence is that some teachers have not been able to use technology optimally [25]. Teachers tend to only use presentations and

videos. Furthermore, most teachers cannot combine content knowledge and other knowledge to be taught in the classroom [25]. In addition, the application of online learning has a negative impact on learning in vocational high schools. Online learning is less effective if it aims to strengthen vocational skills.

Based on the empirical studies that have been carried out, it is known that there has been no previous research that raises the motivation of students to study online, so this is an update in this research. The development of this research also raised student satisfaction antecedent variables consisting of perceived service quality, social media utilization, teacher techno-pedagogical competencies, and students' motivation to learn online. Specifically, this study examines the effect of perceived service quality, social media utilization, teacher techno-pedagogical competencies, and students' motivation to learn online on student learning satisfaction. In addition, this study also examines the mediating role of student learning motivation on the effects of perceived service quality, social media utilization, and teacher techno-pedagogical competencies on student satisfaction. The path of the study hypothesis is shown in Figure 1. Referring to Figure 1, the research hypothesis is obtained as:

i) There is a significant effect of the educational services quality on online learning motivation (H1)
ii) There is a significant effect of using social media on online learning motivation (H2)
iii) There is a significant effect of the teachers' teaching competence on online learning motivation (H3)
iv) There is a significant effect of the educational services quality on learning satisfaction (H4)
v) There is a significant effect of the use of social media on learning satisfaction (H5)
vi) There is a significant effect of the teachers' teaching competence on learning satisfaction (H6)
vii) There is a significant effect of online learning motivation on learning satisfaction (H7)
viii) There is a significant effect of the educational services quality on learning satisfaction through online learning motivation (H8)
ix) There is a significant effect of the use of social media on learning satisfaction through online learning motivation (H9)
x) There is a significant effect of the teachers' teaching competence on learning satisfaction through online learning motivation (H10)

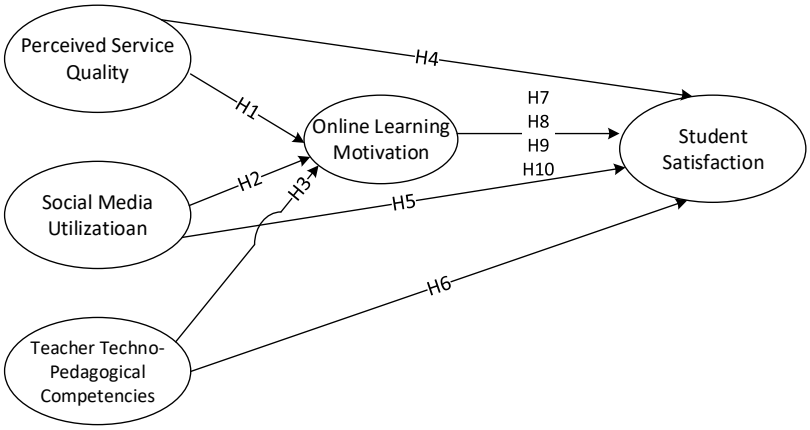

Figure 1. Conceptual model

2. METHOD

2.1. Participant

This study involved 345 state vocational high school students in Gianyar Regency, Bali, Indonesia. The population selection is because vocational schools in Bali are one of the schools affected by the implementation of online learning. Vocational schools are experiencing significant challenges in imparting vocational skills through online learning methods. The total population of state vocational high school students in Gianyar Regency is 2,476 students. Determination of the sample size using Yamane [26] and found 345 students. This sampling technique is a proportional random sampling technique, in which the number of samples for each state vocational high school at the research location will be determined by the population of students at each state vocational high school and the size of the study sample. The sample distribution of this study is shown in Table 1.

Table 1. Population and sample distribution

No	School name	Total	
		Population	Sample
1	SMKN 1 Tampaksiring	511	71
2	SMKN 1 Tegalalang	28	4
3	SMKN 2 Tegalalang	387	54
4	SMKN 1 Ubud	349	49
5	SMKN 1 Sukawati	188	27
6	SMKN 2 Sukawati	543	76
7	SMKN 3 Sukawati	103	14
8	SMKN 1 Gianyar	367	51
	Total	2.476	345

2.2. Measure

The instruments in this study were: i) an educational service quality questionnaire; ii) social media use questionnaire; iii) a teacher's teaching competency questionnaire; iv) an online learning motivation questionnaire; and v) a student learning satisfaction questionnaire. The questionnaire was prepared based on a critical review of the theory described in the literature review. In preparing the instrument, an instrument grid is first made. Then proceed with writing instrument items and conducting trials. Trials were conducted to test the validity and reliability of research instruments. The validity was tested by Pearson product-moment correlation while the reliability was tested by Cronbach's alpha formula.

Students' perceptions of the quality of educational services were measured using a previously developed study questionnaire, namely the Education Services Questionnaire [18], [27], [28]. The total number of items in this questionnaire is 30 items consisting of learning (9 items), administrative services (6 items), academic facilities (7 items), school infrastructure (4 items), and supporting services (4 items). In addition, students' perceptions of social media use were measured using a Social Media Use Questionnaire [29], [30] that was developed and adapted to the context of this study. This questionnaire consists of 30 items consisting of 14 attitudes and 16 beliefs. Furthermore, students' perceptions regarding the competency of teacher pedagogic teaching techniques were evaluated using the Teaching Quality Questionnaire [31] which has been developed and adapted to the context of this study. This questionnaire consists of 39 items consisting of 5 items of technological knowledge, 28 items of pedagogic knowledge, and 6 items of content knowledge. Student motivation is measured using a previous study that has been developed, namely the Learning Motivation Questionnaire [32]–[34]. This questionnaire consists of attention (9 items), relevance (9 items), self-confidence (6 items), and satisfaction (6 items). And finally, student learning satisfaction is evaluated using the Learning Satisfaction Questionnaire [35]–[37]. This questionnaire consists of 41 items consisting of a variety of instructions (7 items), content (7 items), online learning structure (6 items), teacher (8 items), group assignments (5 items), final exam assessment (4 items), and test scores (4 points).

The questionnaire was prepared using multiple alternative answers, and the answer choices consisted of four choices. Scoring of the results of the questionnaire using a modified Likert scale. In a modified Likert scale, one of the gradation forms used starts from Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). The statements used in the questionnaire consist of positive statements (favorable) and negative statements (unfavorable). Positive statements show indications supporting the variables' indicators to be disclosed. Negative statements indicate the opposite. For positive statements, the score used starts from a score of 1 for Strongly Disagree (STS), a score of 2 for Disagree (TS) answers, a score of 3 for Agree (S) answers, and a score of 4 for Strongly Agree (SS) answers. As for negative statements on the contrary, that is, a score of 1 for Strongly Agree (SS) answers, a score of 2 for Agree (S) answers, a score of 3 for Disagree (TS) answers, and a score of 4 for Strongly Disagree (STS) answers. The research instrument was developed based on the theories described in the previous chapter. All instruments use a Likert scale.

2.3. Procedure

The data collection technique used in this study was a questionnaire technique. The questionnaire used for data collection consisted of five questionnaires, namely questionnaires for the variable educational services quality, the variable use of social media, the teaching quality, the variable online learning motivation, and the variable student learning satisfaction. Questionnaires will be given to state vocational high school students in Gianyar Regency who are selected as sample members through an online questionnaire (Google Form). Online questionnaires make it easy to accelerate data distribution and collection.

2.4. Analysis

The data analysis used in this study is structural equation modeling analysis using SmartPLS Software. Path models are diagrams used to present hypotheses and variable relationships are visually examined when structural equation modeling is applied. Partial Least Square (PLS) has two test models, namely the measurement model (Outer model) and the structural model (Inner model). The outer model analysis uses the criteria for AVE>0.7, AVE>0.5, and Community>0.5. In addition, the reliability test uses Cronbach's alpha and composite reliability. Cronbach's alpha>0.7 and Composite reliability>0.7. Structural model analysis (Inner model) includes coefficient of determination (R2). Assessing the structural model can be started from the R-Square value, where each value of the dependent variable is used as the predictive power of the structural model. R-Square values of 0.19, 0.33, and 0.67 indicate weak, moderate, and strong models [38], [39]. The higher the R-Square value means that the better the prediction model is in the proposed research model. Predictive relevance (Q2), Q2 value >0 so that it shows that the model has predictive relevance. Q2 values of 0.02, 0.15, and 0.35 indicate weak, moderate, and strong [38], [39].

3. RESULTS

3.1. Validity and reliability questionnaire

Before the model is analyzed using quantitative techniques, the quality of the collected data is examined first, including checking the validity of the measuring items and the reliability of each first-order latent variable in the model. Measuring items are considered valid as a reflection of the latent variable if the value of the correlation coefficient with other items at the same latent exceeds the lower limit value of 0.30 [40], [41] and the latent variable is declared to have an adequate measure of reliability if the Cronbach's alpha coefficient (α) at least worth 0.60 [42]. The results of the validity and reliability tests of this study are shown in Table 2. All items in each variable are declared valid and appropriate for measuring student perceptions regarding perceived service quality, social media utilization, teacher techno-pedagogical competencies, student motivation to study online, and student learning satisfaction.

Table 2. Validity and reliability test results

Variables (N)	Validity	Cronbach's alpha
Education services quality (30 items)	0.356 ~ 0.699	0.739 ~ 0.830
Social media use (27 items)	0.326 ~ 0.627	0.448 ~ 0.692
Teachers' teaching competence (39 items)	0.541 ~ 0.693	0.612 ~ 0.851
Student motivation in online learning (30 items)	0.338 ~ 0.852	0.643 ~ 0.935
Student satisfaction in online learning (41 points)	0.416 ~ 0.684	0.761 ~ 0.805

3.2. Hypothesis testing using SEM

The results of the analysis using Smart PLS are shown in Figure 2. The figure shows the path coefficients and the significance of each coefficient as the basis for deciding whether the hypothesis is accepted or rejected. The inner model analysis describes the causal relationship between exogenous and endogenous latent variables in SEM. In general, there are two types of influence, namely i) direct influence, influence originating from exogenous latent to endogenous latent; and ii) indirect effects, influences originating from exogenous latent to endogenous latent through one or more other latent variables that act as mediates or moderators [43], [44]. The SmartPLS used is set at the number of sub-samples from the bootstrap process of 5000.

Table 3 shows the path coefficients of direct and indirect effects on causality that are built between a latent variable and its forming dimensions and between latent variables in the developed structural equation model. The table is also accompanied by the significance value of each path coefficient. In testing the direct effect hypothesis, it was found that student learning satisfaction is significantly influenced by the quality of educational services and online learning motivation (H4 and H7 are accepted). Meanwhile, other factors such as the use of social media and teacher competence have not been shown to affect student learning satisfaction (H5 and H6 are rejected). The results of other studies also reveal that online learning motivation is only influenced by the quality of educational services (H1 is accepted). Meanwhile, the use of social media and teacher competency did not prove to affect the online learning motivation of vocational high school students (H2 and H3 were rejected).

Testing the mediating role of student motivation shows that student motivation does not mediate the three effects of quality of education services, use of social media, and teacher competence on student satisfaction in vocational high schools. That is, hypotheses 8, 9, and 10 are rejected with a significance value above 0.05 (Table 3).

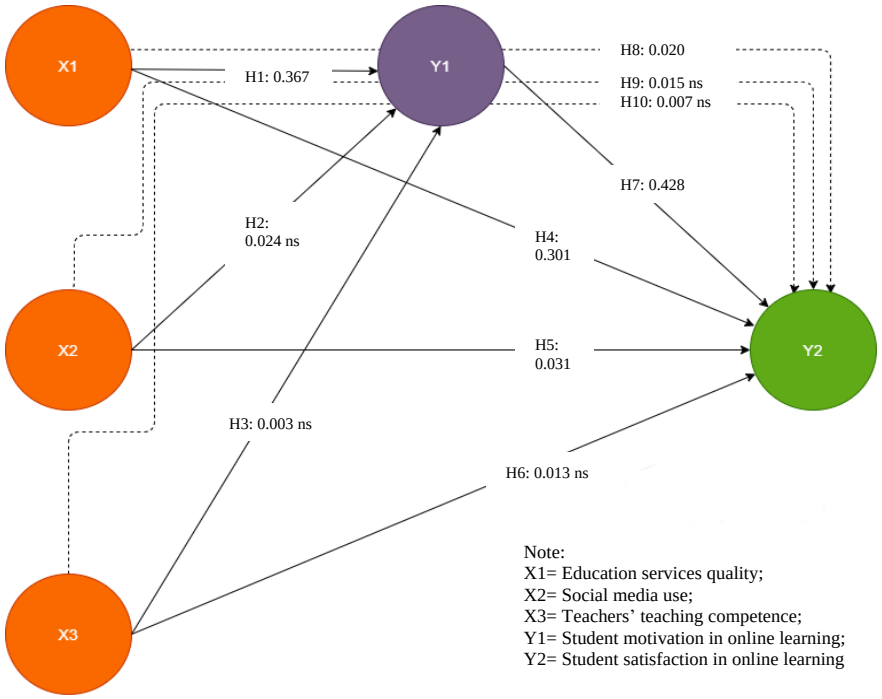

Figure 2. Path coefficient and significance of the model

Table 3. Hypothesis testing results for direct effect

Path among variables	Path coefficient	T Statistics	P-Values
Education services quality -> Online learning motivation	0.367	14.789	0.000
Social media use -> Online learning motivation	-0.024	1.151	0.250
Teachers' teaching competence -> Online learning motivation	0.003	0.175	0.861
Education services quality -> Student learning satisfaction	0.711	25.448	0.000
Social media use -> Student learning satisfaction	-0.031	1.865	0.062
Teachers' teaching competence -> Student learning satisfaction	-0.013	0.308	0.758
Online learning motivation -> Student learning satisfaction	0.428	15.731	0.000
Education services quality -> Online learning motivation -> Student learning satisfaction	0.020	1.833	0.067
Social media use -> Online learning motivation -> Student learning satisfaction	0.015	1.138	0.255
Competence of teacher pedagogic teaching techniques -> Online learning motivation -> Student learning satisfaction	0.007	0.469	0.639

4. DISCUSSION

One of the efforts and actions were taken by the government so that the learning process during the COVID-19 pandemic continues in vocational education is to carry out online learning. The quality of online learning in vocational education is largely determined by the level of student satisfaction. As believed by Muhsin *et al.* [45], student learning satisfaction, including in online learning, is a representation of student attitudes in the learning process that is followed. Students who are satisfied with the online learning process will be preceded by the positive attitude they demonstrate. The results of this study prove that student learning satisfaction is significantly influenced by the quality of educational services and online learning motivation. Meanwhile, the factors of using social media and teacher competency have proven not to affect the learning satisfaction of vocational high school students.

The educational services quality perceived by students has a positive effect on student satisfaction in online learning [46]–[48]. Good educational service quality in online learning is very important for increasing student learning satisfaction [49], [50]. Schools need to ensure that learning platforms are easy to use, have quality learning content, adequate technical and academic support, and effective interactions with teachers and fellow students. These things will help students feel more comfortable, motivated, and assisted in the online learning process and increase their learning satisfaction. In addition, online learning motivation also has an important role in student learning satisfaction. Affective factors related to student engagement include attitude, personality, motivation, effort, and self-confidence [51]. When students are motivated to excel in lessons, these students will be involved or have the desire to learn, and are willing to exert the effort

expected by the teacher. Research has shown that student motivation, engagement, and satisfaction are key factors in successful online learning [52], [53].

Meanwhile, other findings prove that the use of social media does not affect student learning satisfaction. Even though social media has created great opportunities to share ideas and content, the type of social support it provides fails to meet the emotional needs of students in this case namely the satisfaction of students learning online. The results of this study are in contrast to the results of Rahman *et al.* [54] who stated that using social media for learning functions can increase student satisfaction. In addition, when students understand social media as a useful tool to master, the tendency of students to use social media to gain knowledge will increase. However, students will be reluctant to use social media if they perceive social media to be full of dangers. The use of social media in online learning can positively influence student learning satisfaction depending on how it is used. Using social media appropriately can increase student motivation and involvement in the learning process while using it incorrectly can interfere with concentration and reduce the quality of student learning.

In addition, the competency of the teacher's pedagogic teaching techniques also does not influence the learning satisfaction of vocational high school students. This result contradicts the results of previous studies [55], [56] which state that teacher techno-pedagogic competence can have an impact on student learning satisfaction, both in face-to-face and online learning. The teacher's ability to use technology and develop interesting teaching materials can increase student learning satisfaction [57], [58]. Although there is research showing a positive influence between teachers' techno-pedagogic competence and students' online satisfaction, this can be influenced by other factors. Therefore, further research is needed to explore the relationship between these two factors by considering different factors and different contexts.

This study also found other findings that state that student motivation is only influenced by the quality of educational services. Meanwhile, other factors such as the use of social media and teacher competence have not been shown to affect online learning motivation. The quality of educational services plays an important role in influencing students' online learning motivation. Perceived service quality has a direct influence on online learning motivation. When students feel that the quality of the subject matter, technology, and service support is high, they are likely to be motivated to engage more in learning. Research has shown that increasing students' learning motivation can improve their academic performance and results [53]. In addition, students consider that online learning supports learning motivation [59]. In addition, the effect of social media on learning motivation can be different for each student, depending on their characteristics and experience using social media [60]. Students, parents, and teachers need to develop the ability to use social media wisely and healthily in supporting online learning. And the lack of influence of teacher techno-pedagogic competence on online learning motivation can be caused by a lack of teacher skills in using technology in learning. In addition to techno-pedagogic competence, the teacher's ability to motivate students and the teacher's ability to understand the needs and characteristics of students also influence the effectiveness of teachers in teaching online more than the competence of pedagogical teaching techniques.

This study also proves that online learning motivation does not act as a mediator on the effects of quality of education services, use of social media, and teacher competency on the learning satisfaction of vocational high school students. That is, without requiring the mediating role of online learning motivation, the effect of the quality of educational services has a significant positive effect on learning satisfaction. Various other factors affect learning satisfaction such as; a comfortable learning environment, teacher support in online learning, and anxiety related to technology and technical skills [61]–[63]. In addition, online learning motivation does not have a strong influence on learning satisfaction if the use of social media distracts students' attention and time from the subject matter being studied. Online learning motivation will increase when students perceive learning objectives as more relevant, and their competency in using technology is higher [64].

In addition to online learning motivation, many other factors can influence learning satisfaction, such as the quality of learning materials, interactions with teachers and classmates, and a conducive learning environment. Even though teachers have high techno-pedagogic competence and students have high online learning motivation, other inadequate factors can reduce student learning satisfaction. Online learning motivation can affect learning satisfaction, the motivation to study itself can vary among students, depending on factors such as interests, learning goals, and previous experiences. Therefore, even if teachers have high techno-pedagogic competence, if students have low learning motivation, they may still be dissatisfied with online learning. Contributions from individual and institutional levels are needed to foster positive experiences for students in online learning environments and the use of online learning tools to improve their attitudes toward online learning. The results of this study are expected to be used as a reference for the development of online learning to increase student learning satisfaction and in the end, will be able to improve the learning achievement of vocational high school students. Holistic development in online learning is important so that the planned learning objectives can be achieved. So that various factors that include internal and external factors need to be considered in the development of online learning in schools.

5. CONCLUSION

Students' online learning satisfaction is significantly influenced by the quality of educational services and students' online learning motivation. Meanwhile, other antecedent factors such as the use of social media and teacher competence proved to not affect student learning satisfaction. This study also found that students' learning motivation was influenced by the quality of educational services. Meanwhile, the factors of using social media and teacher competency did not significantly influence student learning motivation. Lastly, this study also revealed that students' online learning motivation proved to have no role as a mediator on the effect of quality of education services, use of social media, and teacher competency on the learning satisfaction of vocational high school students. This study provides important implications for teachers to consider the factors of the quality of educational services and student learning motivation in developing online learning in schools. Both of these factors are considered to have an important role to increase learning satisfaction and ultimately can improve student learning achievement. This study has limitations, namely data collection using a self-administered questionnaire method that allows data from respondents to be subjective. So future research needs to complement other methods for data collection, for example, the interview method or involve other respondents besides students (for example, teachers).

REFERENCES

[1] M. H. Al Banna *et al.*, "The impact of the COVID-19 pandemic on the mental health of the adult population in Bangladesh: a nationwide cross-sectional study," *International Journal of Environmental Health Research*, vol. 32, no. 4, pp. 850–861, Apr. 2022, doi: 10.1080/09603123.2020.1802409.

[2] A. Saha, A. Dutta, and R. I. Sifat, "The mental impact of digital divide due to COVID-19 pandemic induced emergency online learning at undergraduate level: Evidence from undergraduate students from Dhaka City," *Journal of Affective Disorders*, vol. 294, pp. 170–179, 2021, doi: https://doi.org/10.1016/j.jad.2021.07.045.

[3] F. van Cappelle, V. Chopra, J. Ackers, and P. Gochyyev, "An analysis of the reach and effectiveness of distance learning in India during school closures due to COVID-19," *International Journal of Educational Development*, vol. 85, p. 102439, 2021, doi: https://doi.org/10.1016/j.ijedudev.2021.102439.

[4] K. Kwaning *et al.*, "Adolescent Feelings on COVID-19 Distance Learning Support: Associations with Mental Health, Social-Emotional Health, Substance Use, and Delinquency," *Journal of Adolescent Health*, vol. 72, no. 5, pp. 682–687, 2023, doi: https://doi.org/10.1016/j.jadohealth.2022.12.005.

[5] T. Fütterer, E. Hoch, A. Lachner, K. Scheiter, and K. Stürmer, "High-quality digital distance teaching during COVID-19 school closures: Does familiarity with technology matter?" *Computers and Education*, vol. 199, p. 104788, 2023, doi: https://doi.org/10.1016/j.compedu.2023.104788.

[6] B. A. Betthäuser, A. M. Bach-Mortensen, and P. Engzell, "A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic," *Nature Human Behaviour*, vol. 7, no. 3, pp. 375–385, 2023, doi: 10.1038/s41562-022-01506-4.

[7] R. Donnelly and H. A. Patrinos, "Learning loss during Covid-19: An early systematic review," *Prospects*, vol. 51, no. 4, pp. 601–609, 2022, doi: 10.1007/s11125-021-09582-6.

[8] M. Kaffenberger, "Modeling the Long-Run Learning Impact of the COVID 19 Learning Shock: Actions to (More Than) Mitigate Loss," 2020. [Online]. Available: https://riseprogramme.org/publications/modeling-long-run-learning-impact-covid-19-learning-shock-actions-more-mitigate-loss.

[9] UNICEF ROSA, "Guidance on Distance Learning Modalities to Reach All Children and Youth during School Closures: Focusing on Low- and No-tech Modalities to Reach the Most Marginalized," 2020. [Online]. Available: https://www.unicef.org/rosa/reports/guidance-distance-learning-modalities-reach-all-children-and-youth-during-school-closures.

[10] T. Mahfud, Y. Mulyani, R. Setyawati, and N. Kholifah, "The influence of teaching quality, social support, and career self-efficacy on the career adaptability skills: Evidence from a polytechnic in Indonesia," *Integration of Education*, vol. 26, no. 1, pp. 27–41, 2022, doi: https://doi.org/10.15507/1991-9468.106.026.202201.027-041.

[11] T. Mahfud, I. Siswanto, D. S. Wijayanto, and P. F. Puspitasari, "Antecedent factors of vocational high school students' readiness for selecting careers: A case in Indonesia," *Cakrawala Pendidikan*, vol. 39, no. 3, pp. 633–644, 2020.

[12] M. Harsasi and A. Sutawijaya, "Determinants of Student Satisfaction in Online Tutorial: A Study of a Distance Education Institution," *Turkish Online Journal of Distance Education*, vol. 19, no. 1, pp. 89–99, 2018.

[13] I.-Y. Chang and W.-Y. Chang, "The effect of student learning motivation on learning satisfaction," *International Journal on Organizational Innovation*, vol. 4, no. 3, pp. 281–305, 2012, [Online]. Available: https://www.proquest.com/docview/921995037.

[14] T. Mahfud, M. Nugraheni, Pardjono, and B. Lastariwati, "Validation of the Chefs' Key Competencies Questionnaire: A Culinary Student Perspective," *Journal of Technical Education and Training*, vol. 12, no. 4, pp. 27–38, 2020, [Online]. Available: https://publisher.uthm.edu.my/ojs/index.php/JTET/article/view/6129.

[15] I. Fauzi and I. H. Sastra Khusuma, "Teachers' Elementary School in Online Learning of COVID-19 Pandemic Conditions," *Jurnal Iqra': Kajian Ilmu Pendidikan*, vol. 5, no. 1, pp. 58–70, 2020.

[16] A. Çebi and T. Güyer, "Students' interaction patterns in different online learning activities and their relationship with motivation, self-regulated learning strategy and learning performance," *Education and Information Technologies*, vol. 25, Sep. 2020, doi: 10.1007/s10639-020-10151-1.

[17] B. Horvitz, A. Beach, M. Anderson, and J. Xia, "Examination of Faculty Self-efficacy Related to Online Teaching," *Innovative Higher Education*, vol. 40, Dec. 2014, doi: 10.1007/s10755-014-9316-1.

[18] A. Parasuraman, V. A. Zeithaml, and L. L. Berry, "A Conceptual Model of Service Quality and Its Implications for Future Research," *Journal of Marketing*, vol. 49, no. 4, pp. 41–50, 1985, doi: 10.1177/002224298504900403.

[19] J. J. Cronin and S. A. Taylor, "Servperf versus Servqual: Reconciling Performance-Based and Perceptions-Minus-Expectations Measurement of Service Quality," *Journal of Marketing*, vol. 58, no. 1, pp. 125–131, 1994, doi: 10.1177/002224299405800110.

[20] M. Hartnett, *Motivation in Online Education*. Singapore: Springer Singapore, 2016.

[21] S. Albrecht and M. Leiter, "Work engagement: Further reflections on the state of play," *European Journal of Work and Organizational Psychology*, vol. 20, pp. 74–88, Feb. 2011, doi: 10.1080/1359432X.2010.546711.

[22] A. Foroughi, "A Research Framework for Evaluating the Effectiveness of Implementations of Social Media in Higher Education," *Online Journal of Workforce Education and Development*, vol. 5, no. 1, pp. 1–12, 2011.
[23] Y. Cao and P. Hong, "Antecedents and consequences of social media utilization in college teaching: A proposed model with mixed-methods investigation," *On the Horizon*, vol. 19, pp. 297–306, Sep. 2011, doi: 10.1108/10748121111179420.
[24] N. Guichon and M. Hauck, "Teacher education research in CALL and CMC: More in demand than ever," *ReCALL*, vol. 23, pp. 187–199, Sep. 2011, doi: 10.1017/S0958344011000139.
[25] N. Absari, P. Priyanto, and M. Muslikhin, "The Effectiveness of Technology, Pedagogy and Content Knowledge (TPACK) in Learning," *Jurnal Pendidikan Teknologi dan Kejuruan*, vol. 26, no. 1, pp. 1–9, 2020.
[26] T. Yamane, *Statistics: An introductory analysis*, 2nd Ed. New York: Harper and Row, 1967.
[27] A. Parasuraman, V. A. Zeithaml, and L. L. Berry, "SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality," *Journal of Retailing*, vol. 64, no. 1, pp. 12–40, 1988.
[28] A. Parasuraman, L. L. Berry, and V. A. B. T.-J. of R. Zeithaml, "Refinement and reassessment of the SERVQUAL scale," *Journal of Retailing*, vol. 67, no. 4, p. 420, Apr. 1991.
[29] P. Ozimek, J. Brailovskaia, and H.-W. Bierhoff, "Active and passive behavior in social media: Validating the Social Media Activity Questionnaire (SMAQ)," *Telematics and Informatics Reports*, vol. 10, 2023, doi: 10.1016/j.teler.2023.100048.
[30] M. Ogata *et al.*, "51.16 social media use and impact on youth during the covid-19 pandemic: a novel electronic questionnaire to engage youth about social media use," *Journal of the American Academy of Child and Adolescent Psychiatry*, vol. 59, no. 10, Supplement, pp. S255–S256, 2020, doi: https://doi.org/10.1016/j.jaac.2020.08.426.
[31] T. Mahfud, S. Indartono, I. N. Saputro, and I. Utari, "The effect of teaching quality on student career choice: The mediating role of student goal orientation," *Integration of Education*, vol. 23, no. 4, pp. 541–555, 2019, doi: 10.15507/1991-9468.097.023.201904.541-555.
[32] J. Li, R. B. King, and C. Wang, "Adaptation and validation of the vocabulary learning motivation questionnaire for Chinese learners: A construct validation approach," *System*, vol. 108, p. 102853, 2022, doi: https://doi.org/10.1016/j.system.2022.102853.
[33] S. Bushuven *et al.*, "Overconfidence effects and learning motivation refreshing BLS: An observational questionnaire study," *Resuscitation Plus*, vol. 14, p. 100369, 2023, doi: https://doi.org/10.1016/j.resplu.2023.100369.
[34] X. Guo *et al.*, "Perceived parenting style and Chinese nursing undergraduates' learning motivation: The chain mediating roles of self-efficacy and positive coping style," *Nurse Education in Practice*, vol. 68, p. 103607, 2023, doi: 10.1016/j.nepr.2023.103607.
[35] I. Topala and S. Tomozii, "Learning Satisfaction: Validity and Reliability Testing for Students' Learning Satisfaction Questionnaire (SLSQ)," *Procedia - Social and Behavioral Sciences*, vol. 128, p. 380, 2014, doi: 10.1016/j.sbspro.2014.03.175.
[36] T. M. Alqahtani, F. D. Yusop, and S. H. Halili, "Dataset on the relationships between flipped classroom approach, students' learning satisfaction and online learning anxiety in the context of Saudi Arabian higher education institutions," *Data in Brief*, vol. 45, p. 108588, 2022, doi: https://doi.org/10.1016/j.dib.2022.108588.
[37] R. Tosterud, K. Petzäll, B. Hedelin, and M. L. Hall-Lord, "Psychometric testing of the Norwegian version of the questionnaire, Student Satisfaction and Self-Confidence in Learning, used in simulation," *Nurse Education in Practice*, vol. 14, no. 6, pp. 704–708, 2014, doi: https://doi.org/10.1016/j.nepr.2014.10.004.
[38] I. Ghozali, *Structural Equation Modeling alternative method with Partial Least Square*. Semarang: Badan Penerbit Universitas Diponegoro (in Indonesian), 2014.
[39] W. W. Chin, "The Partial Least Squares Approach to Structural Equation Modeling," in *Modern Methods for Business Research*, G. A. Marcoulides, Ed. Mahwah, NJ: Lawrence Erlbaum Associates, Inc., 1998, pp. 295–336.
[40] G. A. Churchill, "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, vol. 16, no. 1, pp. 64–73, Apr. 1979, doi: 10.2307/3150876.
[41] A. Field, *Discovering statistics using IBM SPSS statistics*, 4th Ed. London: Sage Publication, 2013.
[42] J. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate data analysis: A global perspective*, 7th. Upper Saddle River: Pearson Prentice Hall, 2010.
[43] R. M. Baron and D. a. Kenny, "The moderator-mediator variable distinction in social the moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations," *Journal of Personality and Social Psychology*, vol. 51, no. 6, pp. 1173–1182, 1986, doi: 10.1037/0022-3514.51.6.1173.
[44] K. J. Preacher and A. F. Hayes, "Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models," *Behavior Research Methods*, vol. 40, no. 3, pp. 879–891, 2008, doi: 10.3758/BRM.40.3.879.
[45] M. Muhsin, s Martono, A. Nurkhin, H. Pramusinto, N. Afsari, and A. Arham, "The Relationship of Good University Governance and Student Satisfaction," *International Journal of Higher Education*, vol. 8, p. 1, Oct. 2019, doi: 10.5430/ijhe.v9n1p1.
[46] M. J. M. Arguelles and J. M. B. Busquet, "Perceived service quality and student loyalty in an online university," *International Review of Research in Open and Distributed Learning*, vol. 17, no. 4, pp. 264–279, 2016.
[47] P. Dangaiso, F. Makudza, and H. Hogo, "Modelling perceived e-learning service quality, student satisfaction and loyalty. A higher education perspective," *Cogent Education*, vol. 9, no. 1, 2022, doi: 10.1080/2331186X.2022.2145805.
[48] J. Okado, A. Bin, B. Gyokuren, N. Sakurai, Y. Fujiwara, and H. Tanji, "Covariance structure analysis of health-related indicators for elderly people living at home, focusing on subjective sense of health," (in Japanese), Comprehensive Urban Research, no. 81, pp. 19–30, 2003.
[49] H. M. Selim, "E-learning critical success factors: An exploratory investigation of student perceptions," *International Journal of Technology Marketing*, vol. 2, no. 2, pp. 157–182, 2007, doi: 10.1504/IJTMKT.2007.014791.
[50] L. Pham, Y. B. Limbu, T. K. Bui, H. T. Nguyen, and H. T. Pham, "Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam," *International Journal of Educational Technology in Higher Education*, vol. 16, no. 1, 2019, doi: 10.1186/s41239-019-0136-3.
[51] B. J. Mandernach, E. Donnelli-Sallee, and A. Dailey-Hebert, "Assessing Course Student Engagement," in *Programs, techniques and opportunities*, Syracuse, NY: Society for the Teaching of Psychology, 2011, pp. 277–281.
[52] M. Todorova and D. Karamanska, "A study of motivation and satisfaction of students in E-learning environment," *Applied Technologies and Innovations*, vol. 11, no. 2, pp. 82–89, 2015, doi: 10.15208/ati.2015.09.
[53] F. Yahiaoui *et al.*, "The Impact of e-Learning Systems on Motivating Students and Enhancing Their Outcomes During COVID-19: A Mixed-Method Approach," *Frontiers in Psychology*, vol. 13, no. July, 2022, doi: 10.3389/fpsyg.2022.874181.
[54] S. Rahman, T. Ramakrishnan, and L. Ngamassi, "Impact of social media use on student satisfaction in Higher Education," *Higher Education Quaterly*, vol. 74, no. 3, pp. 304–319, 2020, doi: 10.1111/hequ.12228.
[55] I. Kovačević, J. A. Labrović, N. Petrović, and I. Kužet, "Recognizing predictors of students' emergency remote online learning satisfaction during COVID-19," *Education Sciences*, vol. 11, no. 11, 2021, doi: 10.3390/educsci11110693.
[56] N. M. Almusharraf and S. H. Khahro, "Students' Satisfaction with Online Learning Experiences during the COVID-19 Pandemic," *International Journal of Emerging Technologies in Learning*, vol. 15, no. 21, pp. 246–267, 2020, doi:

10.3991/ijet.v15i21.15647.
[57] N. A. M. Omar, Z. Jusoh, and S. A. A. Kasuma, "Malaysian University Undergraduates' Perceptions towards Comprehensive Online Instructions amidst COVID-19," *Universal Journal of Educational Research*, vol. 8, no. 12, pp. 7131–7140, 2020, doi: 10.13189/ujer.2020.081280.
[58] N. H. Omar, B. Thomas, M. Z. Jusoh, and S. Z. Jalil, "Students' Perception and Preference for Online Learning in Sabah During Covid-19 Pandemic," *International Journal of Academic Research in Business and Social Sciences*, vol. 11, no. 11, 2021, doi: 10.6007/ijarbss/v11-i11/11262.
[59] D. Y. Irawati and J. Jonatan, "Evaluation of the Quality of Online Learning During the Covid-19 Pandemic: Case Study at the Faculty of Engineering, Darma Cendika Catholic University," (in Indonesian), *Jurnal Rekayasa Sistem Industri*, vol. 9, no. 2, pp. 135–144, 2020, doi: 10.26593/jrsi.v9i2.4014.135-144.
[60] J. Abbas, J. Aman, M. Nurunnabi, and S. Bano, "The impact of social media on learning behavior for sustainable education: Evidence of students from selected universities in Pakistan," *Sustainability*, vol. 11, no. 6, pp. 1–23, 2019, doi: 10.3390/su11061683.
[61] R. Truzoli, V. Pirola, and S. Conte, "The impact of risk and protective factors on online teaching experience in high school Italian teachers during the COVID-19 pandemic," *Journal of Computer Assisted Learning*, vol. 37, no. 4, pp. 940–952, 2021, doi: 10.1111/jcal.12533.
[62] H. C. B. Setiawan and N. Fatimah, "Change Business Model of Islamic Religious College Business in East Java by Building Integrated Online Policy and Technology Systems During the COVID-19 Pandemic Period," *Journal of Islamic Economics Perspectives*, vol. 2, no. 1, 2020.
[63] T. K. F. Chiu, T. J. Lin, and K. Lonka, "Motivating Online Learning: The Challenges of COVID-19 and Beyond," *Asia-Pacific Education Researcher*, vol. 30, no. 3, pp. 187–190, 2021, doi: 10.1007/s40299-021-00566-w.
[64] K. J. Kim and T. Frick, "Changes in student motivation during online learning," *Journal of Educational Computing Research*, vol. 44, no. 1, pp. 1–23, 2011, doi: 10.2190/EC.44.1.a.

BIOGRAPHIES OF AUTHORS

Ida Bagus Putu Puja is a lecturer at Bali Tourism Polytechnic. He was appointed as a lecturer at the university in 1990 and continued his doctoral studies at the Universitas Pendidikan Ganesha's start 2020 till now. October 2019, he served as a Director of Bali Tourism Polytechnic. He is devoted to enhancing the quality of teaching and learning in tourism study. He can be contacted via email: putupujaidabagus@gmail.com.

Anak Agung Gede Agung is a Professor at the Universitas Pendidikan Ganesha. Graduate Doctoral Study from the Universitas Negeri Malang, with a concentration in management education. He can be contacted at email: agung2056@undiksha.ac.id

I Gusti Ketut Arya Sunu is a Professor at the Universitas Pendidikan Ganesha. Graduate Doctoral Study from the Universitas Pendidikan Ganesha, with a concentration in management education. He can be contacted at email: arya.sunu@undiksha.ac.id

I Putu Wisna Ariawan is a Professor at the Universitas Pendidikan Ganesha. Graduate Doctoral Study from the Universitas Negeri Jakarta, with a concentration in Research and Education Evaluation. He can be contacted at email: wisna.ariawan@undiksha.ac.id