IJBS VOL. 5, NO. 2, DECEMBER 2022: 198–205 DOI: 10.9744/ijbs.5.2.198–205
E-ISSN 2621-6426

The Effect of Student's Perception of Learning Innovation on Student Engagement and Student Satisfaction

Anita Setyawati[1*], Serli Wijaya[2], Deborah C. Widjaja[3]
[1,2,3] School of Business and Management, Petra Christian University
Jl. Siwalankerto 121-131, Surabaya, Indonesia
*Corresponding author; Email: d21200051@john.petra.ac.id

Abstract

The COVID-19 pandemic has changed how people live, including education. Due to an increase in positive cases of COVID-19, the teaching and learning process must be carried out online. However, online learning that is carried out suddenly caused by the pandemic can affect a decrease in student engagement and student satisfaction. This research aims to determine student perceptions of teaching innovations that impact student engagement and satisfaction. The online survey was distributed to 166 students of an international program at a private university in Surabaya, Indonesia. The research found that learning methods or strategies prepared by the lecturers to create learning innovation positively impact student engagement and student satisfaction. The ideal teaching method or strategy during online learning supports the interaction between the lecturer and students. Such interaction would increase student engagement, such as learning motivation, being confident in their abilities and deep understanding, and sharing learning experiences, ideas, and knowledge so that student satisfaction will be enhanced.

Keywords*:* Learning innovation; student engagement; student satisfaction; technology; interaction.

1. Introduction

The COVID-19 pandemic in March 2020 has impacted all aspects of human life, including the education sector, K-12 primary education, and higher education. The instruction is done online to stop the COVID-19 infection from spreading. According to Purwanto, Fahlevi, Santoso, Radyawanto, and Anwar (2020), online lectures suddenly require lecturers to be more creative in teaching, while on the student side, the impact of the pandemic is more psychological. Such as reduced direct face-to-face interactions and decreased understanding of teaching materials affect the decrease in student interest in learning.

Studies conducted by Alsadoon (2018) and Bolliger and Martin (2018) reveal that reduced interaction between students and lecturers or students with other students can reduce student engagement and satisfaction levels. A survey from Digital Promise on students in the United States measured college satisfaction before and during the pandemic. The result showed that 87% of the total respondents were satisfied before the pandemic, and only 12% were dissatisfied. Still, student satisfaction decreased to 59% of the total respondents during the pandemic. Total respondents, while the level of dissatisfaction increased to 40% (Means & Neisler, 2020).

A similar phenomenon was found in the research of Hakim and Kawamorita (2020), where there was a decrease in the level of satisfaction of international students in Turkey due to online learning services and lecturers. Likewise, in Australia, the results survey conducted in 2020 by Quality Indicators for Learning and Teaching (QILT) on students showed the highest decline since 2012, which was 10%, compared to 2019 due to a decrease in student engagement. In contrast, in 2019, it was by 59.9% to 43.2% in 2020 (Zhou, 2021).

This fact was also found in one of the international programs at private universities in Surabaya, where the level of student satisfaction in semester 2-2019/2020 decreased compared to semester 1-2019/2020 when before the pandemic until semester 1-2021/2022.

Student satisfaction is inseparable from the quality of teachers, the availability and quality of technology as a resource used, and the effectiveness of using the technology (Wilkins & Balakrishnan, 2013). Online learning requires lecturers to create a conducive learning environment through positive student interactions. Lecturer innovation is needed to ensure that learning is effective, fun, and comfortable for both parties. Online lectures are more challenging because lecturers must be able to retain students' engagement during learning. According to Trowler (2010), student engagement is student participation in effective learning inside and outside the classroom, leading to a learning outcome. According to the literature, research has been done to determine how well students learn new things. For example, a study by Lee (2011) in Taiwan found several factors influencing student satisfaction, including materials, learning methods, learning environment, and lecturer-student interpersonal relationships. In addition, the results of Lee's research (2011) also show that learning innovation has a positive impact on student learning satisfaction, and learning satisfaction has a positive impact on learning effectiveness and mediates between learning innovation and learning effectiveness.

Gray and DiLoreto (2016) also found a significant effect of the learning structure designed by the lecturer on student satisfaction.

Previous studies have confirmed the effect of learning innovation on student engagement. An example is an Australian study that indicated that lecturers' active learning initiatives significantly impacted student engagement. Active learning prepared by lecturers can improve the collaborative learning experience, critical thinking skills, communication, and student retention. In addition, students can provide input in the learning undertaken, where all these are indications of student engagement (Arjomandi, Seufert, O'Brien & Anwar, 2018; Angella and Ricky, 2022). For students' perceived learning innovations, previous research has shown the role of student engagement in mediating the effect of lecturer learning innovations on student satisfaction. For example, Gray and DiLoreto's (2016) research showed that student engagement significantly mediated the influence of learning structure, lecturer attendance, and lecturer-student interaction on student satisfaction.

The above phenomenon encourages researchers to conduct empirical studies to examine the effect of student perceptions of lecturer learning innovations on student engagement and student satisfaction during the pandemic. Four hypotheses will be proven in this study: H_1: Learning innovation during the pandemic affects student engagement. H_2: Learning innovations during the pandemic affect student satisfaction. H_3: Student engagement affects student satisfaction, and H_4: Student engagement mediates the relationship between learning innovation and student satisfaction. The remainder of the paper is organized as follows. The literature review section provides a theoretical basis for the hypotheses development. Next, the research method section describes how samples, data collection, and statistical analysis are selected. The study findings are then presented and discussed, followed by implications and conclusions.

2. Literature Review

2.1. Learning Innovation

Innovation is introducing a new method in which new ideas or things for a specific person or group result in a change (Serdyukov, 2017). Another opinion about innovation is challenging, enjoyable, and creative and leads to change or development (Smith, 2011). New ideas or ideas are expected to be helpful for the creator and also for others. In education, learning innovation can be interpreted as a learning renewal that is packaged on encouraging new ideas by taking learning steps to obtain progress in learning outcomes. Salmon (2014) defines learning innovation as a strategic framework to encourage and improve learning experiences and learning outcomes. Learning innovation is closely related to the use of advanced technology and the pedagogy of inherent innovation, the intrinsic potential for developing and achieving ideas, and quality improvement. Learning innovation also involves the role of lecturers who can design good learning (Salmon, 2014). The definition related to learning innovation is not only associated with that, but another definition is also a lecturer's creativity that can do before teaching and during the learning process. The expected lecturers' abilities are to reflect, design, and apply new and diverse learning methods to stimulate motivation and interest in learning and improve learning outcomes and student satisfaction (Lee, 2011).

According to Lee (2011), there are two indicators of innovative learning innovation: innovation related to teaching methods and innovation related to learning design.

1. Innovation of learning methods refers to the ability of teachers to use new tools or techniques that can help the learning process.
2. Innovation of learning design refers to the ability of teachers to design their learning and flexible innovation capabilities.

A previous researcher, Budin (1999), emphasized the use of technology in schools to optimize the use of software or multimedia available on the internet. If teachers understand the use of multimedia, teachers can develop it as a new teaching tool and method. The role of teacher in online plays a critical role because the teacher acts as a designer who prepares and makes lesson plans and also acts as a facilitator and instructor who provides direction and instruction in the class being cared (Meyer, 2014; Angella and Ricky, 2022). The teacher, as a facilitator, plays a role in explaining the learning material where there may be similarities or differences in perceptions between students. The teacher is also able to encourage students to work together. Furthermore, the role of the teacher as an instructor is to be involved in a discussion and evaluate the correct understanding, providing opportunities for students to increase knowledge and providing new and relevant sources of information for shared experience (Meyer, 2014). This research adopted eleven indicators from Meyer's study (2014) to measure the lecturer's ability as a designer of learning innovation, facilitator, and motivator. Besides, three indicators were adopted from the result of Budin (1999) to measure lecture creativity in online learning.

2.2. Student Engagement

According to Trowler (2010), student engagement is related to the interaction between time, effort, and other relevant resources made by students to maximize student experience and learning outcomes by shaping

students and improving student performance. Another definition of student engagement is a psychological commitment to be involved in the learning process to gain knowledge and build a critical mindset (Dixson, 2015).

Student engagement is defined as the energy and effort employed by students in their learning community. It characterizes it through various behavioral, cognitive, or effective markers, supporting the above opinion of student engagement and its signs (Bond & Bedenlier, 2019). Formed by structural and internal influences, including interactions, learning activities, and the learning environment, student engagement is measured based on three following dimensions:

1. Cognitive engagement is a strategy for a deep understanding of the learning material and the ability of students to control themselves and try to focus during learning.
2. Affective engagement is a positive reaction to the environment.
3. Behavioral engagement is a form of participation and positive behavior in the learning process.

In their follow-up research, Bond, Buntins, Bedenlier, Zawacki-Richter and Kerres (2020) tested those three dimensions of student engagement developed and described in the previous section through an empirical study of 243 students in the USA and UK. The research results show that respondents perceive ten indicators as the most representative indicators of student engagement. Furthermore, Bond et al. (2020) made a top ranking of student engagement. The indicators are ranked as follows: participation/interaction/involvement, achievement, positive interaction with teachers and peers, enjoyment, learning from peers, deep learning, self-regulation, confidence, positive attitude about learning, interest, motivation, and enthusiasm.

2.3. Student Satisfaction

Rahmawati (2013) interpreted satisfaction as feeling happy or disappointed by the customer by comparing expected and obtained from the product (Muzakki & Tarigan, 2020). Student satisfaction is the result of the experiences felt by students related to various factors such as academic staff, teaching materials, learning preparation, and lecturer skills (Weerasinghe & Fernando, 2017; Yusoff, McLeay & Woodruffe-Burton, 2015). It is further explained that the quality of lecturers influences student satisfaction in delivering learning materials, the quality of feedback directed to students during lectures and feedback on coursework, the relationship between lecturers and students in the classroom, the quality and availability of learning materials, and the effective use of technology (Wilkins & Balakrishnan, 2013). Wu (2010) developed several indicators of student satisfaction as follows: satisfaction related to aspects: 1) cognitive trust, which includes self-efficacy and performance expectations; 2) technological environment, which includes system functionality and content features; and 3) social environment, which is reflected in interaction and learning climate.

Meanwhile, Cole, Shelley, and Swart (2014), measuring student satisfaction when experiencing online learning, developed several indicators of student satisfaction, including interaction (including communication), convenience, structure (including clarity and facilities used by educators online), teaching styles, and platforms (Cole et al., 2014). Chiu, Hsu, Sun, Lin, and Sun (2005) explained that student satisfaction was measured by three questions as follows: 1) I am satisfied with the performance of the e-learning service; 2) I am pleased with the experience of using the e-learning service, and 3) my decision to use the e-learning service was a wise one.

3. Methods

The population of this study was students of an international program at a Surabaya-based private institution from class 2018 to 2021, with a total number of 110 respondents. Therefore, the sample from the study is part of the number and characteristics possessed by the population (Sugiyono, 2010). The meaning is that the sample taken is truly representative and can describe the characteristics of the population. In this study, the representative sample were students of an international program who took online lectures during the COVID-19 pandemic, starting from March 2020-present. The population used as a sample is all active students from the 2018 to 2021 class. The questionnaire was distributed online using Google Forms, which was distributed from 11 until 24 April 2022 and collected as many as 140 valid respondents. A total of 110 students took online lectures for four semesters, starting from the 2018 to 2020 class, and the remaining 30 took online for two semesters, namely the 2021 class.

3.1. Method of Collecting Data

Data collection will be done online using Google Forms because it is still in a pandemic condition. Students as respondents were asked to answer the questionnaire by giving a number on a Likert scale ranging from 1 (Strongly Disagree), 2 (Disagree), 3 (Neither Disagree and Agree), 4 (Agree), and 5 Strongly Agree) for the variables of learning innovation, student satisfaction, and student engagement. The items for the questionnaire questions are as follows:

1. The measurement learning innovation used a result by Meyer (2014), which consists of eleven questions where eleven questions are grouped into three parts:
   - IP 1-4 are items that measure the ability of lecturers to design innovative learning and the ability of

lecturers to organize online learning sessions in class.
- IP 5-8 are items that measure the ability of lecturers to become facilitators who help students to understand learning materials in online classes.
- IP 9-11 are items that measure the ability of lecturers to provide input to students when learning online in class.
- IP 12 -14 are items that measure teacher creativity during online learning.

2. Student engagement used ten indicators adopted by Bond et al. (2020). These ten indicators are the result of extraction from Bond and Bedenlier's research (2019) based on the three dimensions of student engagement they developed previously. Thus, because the measurement of student engagement from these ten indicators is a global measurement, in this study, the measurement and data processing of the student engagement variable is not required in two levels (second order).
3. Student satisfaction are examined based on Chiu et al. (2005).

4. Results

Table 1 shows the composite reliability of the three variables having values between 0.906 to 0.918. Hair, Hult, Tomas, and Ringle (2016) state a good composite reliability (CR) value is 0.7, and the composite reliability of the three variables in this study is reliable and satisfactory. The results of Cronbach's alpha show the value of each variable is between 0.866 to 0.901. Therefore, it is concluded that Cronbach's alpha in this study's three variables is reliable where the result is greater than 0.70.

The discriminant validity test showed that the student satisfaction variable had a higher correlation value of 0.888 compared to learning innovation (0.711) and student engagement (0.721). This means all variables are valid. To determine the relationship between latent variables, the inner model measures the value of R^2 (R-squared multiple correlations) and the value of Q^2 (Q-square Predictive Relevance). In this study, the R-square for student satisfaction is 0.484, which means that the learning innovation variable can influence the percentage of student satisfaction is 48.4%, with reasonable accuracy. The R-square for student engagement is 0.293, which means that the learning innovation variable can influence the percentage of student engagement is 29.3%, with a moderate level of accuracy. The Q^2 value obtained from the data processing results is 0.368 for student satisfaction and 0.143 for student engagement, which means that the relevance of the model to predicting the relationship between the variables studied is 36.8%.

Table 1. Convergent Validity Test Results

Indicator	Outer Loading	CR	CA	AVE
Learning Innovation Variable				
LI 1	0.626			
LI 2	0.741			
LI 3	0.647			
LI 4	0.522			
LI 5	0.633			
LI 6	0.789	0.917	0.901	0.506
LI 7	0.783			
LI 8	0.815			
LI 9	0.776			
LI 10	0.734			
LI 11	0.700			
Student Engagement Variable				
SE 4	0.647			
SE 5	0.652			
SE 6	0.765			
SE 7	0.717			
SE 8	0.781	0.918	0.866	0.789
SE 9	0.803			
SE 13	0.771			
SE 14	0.586			
SE 15	0.732			
Student Satisfaction Variable				
SS 1	0.888			
SS 2	0.931	0.906	0.883	0.519
SS 3	0.844			

4.1. Hypothesis Test Results

Table 2 and Figure 1 show the results of the hypothesis testing as described as follows:

1. The effect of learning innovation on student satisfaction has a t-statistics value of 2.594 (cut-off value t-statistic > t-table 1.96 with a p-value of 0.010 (cut-off value of significance 0.05). So, it can be stated that learning innovation is positive and significant that influences student satisfaction.
2. The influence of learning innovation on student engagement has a t-statistics value of 9.664 (cut-off value t-statistics > t-table 1.96 with a p-value of 0.000 (cut-off value of significance 0.05). Therefore, it can be stated that innovative learning is a variable that has a positive and significant effect on student engagement.
3. The effect of the student engagement variable on student satisfaction has a t-statistics value of 8.283 (cut-off value t-statistics > t-table 1.96 with a p-value of 0.000 (cut-off value of significance 0.05). Therefore, it can be stated that student engagement has a positive and significant effect on student satisfaction.
4. Student engagement significantly mediates the effect of student perceptions of learning innovation on student satisfaction.

Table 2. Path Coefficients

Variable	OS	(M)	STDEV)	T-Stat	P Values
Learning Innovation→ Student Satisfaction	0.236	8,283	2.594	0.091	0.010
Learning Innovation →Student Engagement	0.542	0.553	0.056	9,664	0.000
Student Engagement → Student Satisfaction	0.538	0.546	0.065	8,283	0.000
Learning Innovation → Student Engagement → Student Satisfaction	0.292	0.302	0.045	6.510	0.000

Following the t-test result, the Variance Account For (VAF) value was measured showing the result of 55%, meaning that the student engagement appeared to be a partial mediation of the effect of learning innovation on student satisfaction.

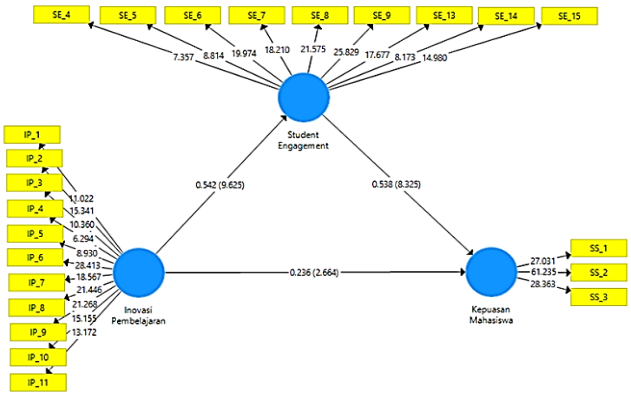

Figure 1. Bootstrapping Result

5. Discussion

5.1. The Effect of Learning Innovation on Student Engagement

Innovation is challenging yet enjoyable and creative and leads to change or development (Smith, 2011). Salmon (2014) states that learning innovation is a strategic framework to encourage and improve learning experiences and outcomes. There are three indicators with distinct outer loading. The first indicator is "The lecturer's efforts to strengthen togetherness among students," with the value of outer loading at 0.815. This shows that the things or efforts that lecturers do in the classroom that can engage students are the most important and reflect whether the lecturer's learning is innovative. This confirms previous research conducted by Salmon (2014) that the preparations made by lecturers related to the strategic learning framework that will apply in the classroom can increase interaction between lecturers and students. The exchange can create engagement from students towards the learning that is followed. engagement that is created can further enhance a more positive learning experience and achievement. Aligning with technology development, lecturers must be creative, so students do not feel bored online. Lecturers prepare to learn by providing interactive games for two-way interaction. This happened in a class where the lecturer gave interactive games using Kahoot, Quizzes, and Bingo which were held weekly. This makes students understand the learning material well, and another benefit that is obtained is that students feel entertained. The learning process runs fun, and engagement is created, which can further enhance a more positive learning experience and achievement.

The second highest indicator is "Helping students stay involved and participate in productive dialogue," with an outer loading of 0.789. This shows the things that lecturers do to stimulate students to be actively involved in a productive discussion or dialogue. These results are the things that best reflect whether the lecturer's learning is innovative or not, like what lecturers do, where the lecturer invites students to express their opinion about a topic/learning material. Before the discussion, the lecturer provided motivation or stimulation to stimulate students to express their views during the learning process actively. Inspiration or stimulation can be used as activity points to add value to students. For example, in a class, a lecturer who happens to be foreign uses a break-out room classroom Zoom to facilitate each group to discuss lecture material. Students will be given lecture assignments to discuss with the group, and then each group will move to a break-out room. During the discussion, the lecturer will enter the break-out room and assess student activity. After students discussed in the break-out room, students were asked to return to the main room and present the discussion results.

The next indicator with the outer loading is "Encouraging students to explore new concepts in lectures," with an outer loading of 0.783. This shows that lecturers actively invite and encourage students to deepen their understanding of the material by exploring new concepts and learning materials, reflecting on whether the lecturer's learning is innovative. The efforts of the lecturers in encouraging students to deepen their understanding of new concepts are one of them by providing case studies with the aim that students can explore information from outside the classroom that can obtain through the internet or the environment around

the community. With the case studies provided, students can do mini-research on matters related to case study assignments. Case study assignments will emphasize a deeper understanding of a particular phenomenon. With the case studies provided, students' understanding will be better, and students will have a broad picture of a phenomenon.

This has been previously researched by Alvarez-bell (2017), who stated in his research concluded that the important thing in learning innovation is that the instructor encourages interaction between students and lecturers. It develops reciprocal relationships and cooperation among students, encourages active learning techniques, integrates prompt feedback, emphasizes deadlines, coursework student engagement, and high student satisfaction. During the pandemic, lecturers are required to innovate in their learning to keep it interesting. The lecturer's job is to plan lessons involving student participation to foster learning engagement and maintain a positive online learning environment. In addition, with learning innovations, students can take an active part in every involvement in class, such as conducting discussions, playing games online, and deepening the material.

5.2. The Effect of Learning Innovation on Student Satisfaction

Student satisfaction is the result of the experiences felt by students related to various factors such as academic staff, learning materials, preparation of learning from lecturers, and lecturer skills (Weerasinghe & Fernando, 2017; Yusoff et al., 2015). Related to the Student Satisfaction variable, the indicator with the outer loading class online experience" with a value of 0.931 reflects that students feel happy and enjoy participating in online learning in the program. In accordance with learning innovation, one of which is to make students feel comfortable and enjoy their learning. The innovation lecturers do during online learning has made students feel happy with the online learning experience. The Lecturers establish interaction with students by asking about the situation or paying attention (empathy) to students, sharing experiences and stories in class, playing simple games, or joking in online classes. The next indicator with the outer loading is "Feeling satisfied with the performance of the online class," with a value of 0.888, which shows that the learning innovations prepared by the lecturers are interactive games and making videos about lecture material (Asynchronous) and the facilities provided. Programs such as the use of platforms learning online (Zoom & Google Meet), the use of the Learning Management System (Lantern), online workshops and training online, and technical support such as Dropbox and Google Drive; while others have satisfied students during online learning during the COVID pandemic. -19. Research conducted by Almusharraf and Kahro (2020) concluded the same thing, namely that student satisfaction is influenced by online learning strategies or learning innovation. The learning strategy here refers to using online learning platforms, online learning methods, and other approaches.

The lecturers make efforts to prepare online methods asynchronous in the principles of accounting, corporate accounting and cost accounting, business mathematics, statistics, and management information system courses. The lecturer continues making recordings of lecture material discussions and then uploads them to YouTube. The link is informed to Cloud Lentera (i.e., a Learning Management System applied at the university) so that students can study it first before entering the online. With the video recording of the learning material before the lecture begins, students can understand the material well, which can give them satisfaction because their understanding of the material is getting better and more profound, which will later affect student learning outcomes. The indicator with the outer loading is "Procurement online is a wise decision," with a value of 0.844, which shows that students follow the right decision online during the pandemic. Learning online during the pandemic can have a positive effect on student satisfaction. Students can have many opportunities to develop themselves and increase knowledge and insight by attending seminars, workshops, online training, and learning such as Blinkist, Udemy, or Coursera. The program offers students the opportunity to participate online through Udemy or Coursera. Learning/courses online can add insight, skills, and student development so that it will have an impact on student satisfaction.

5.3. The Effect on Student Engagement to Student Satisfaction

Student engagement impacts student satisfaction, such as the presence of an active class condition and the interaction that can form with student engagement. Interactions in online learning can be in the form of sharing learning experiences, ideas, and knowledge, which can increase student satisfaction, motivation, and performance (Kurucay & Inan, 2017; Martin & Bolliger, 2018). In this study, the results obtained from the original sample variable student engagement on student satisfaction is 0.538, which indicates that student engagement positively influences student satisfaction. Based on the indicators processed in this study, the things that show student engagement and that lead to student satisfaction are "I set a lesson plan to be able to direct my activities in the lesson." Cognitive engagement,

positive engagement in learning, and trying to achieve learning success. With the achievement of learning success, it will increase student satisfaction. Students try to understand the learning materials provided, such as videos explaining lecture material or case studies; with active cognitive abilities, students can analyze problems, apply the theories taught in class, and then make observations to get answers to these problems. With their cognitive skills, students will provide student satisfaction by completing college assignments or getting solutions to existing problems.

Another indicator is "I feel motivated to take online classes." The positive form of affective engagement is by having a strong motivation to take online. With this motivation, students will be more enthusiastic and positively impact the learning process, which will increase student satisfaction with the learning outcomes. Students' motivation remains strong during online learning, which is indicated by their active involvement during the online learning process. This student activity can be seen from the interaction and discussion or group work carried out by students and lecturers in the classroom. Therefore, increasing student motivation during online learning will affect learning outcomes and student satisfaction.

The third indicator that shows behavioral engagement is "By having a deep understanding of the material, I feel confident when I speak about my thoughts." Positive behavior to make an effort and take the time to deepen and understand the learning material will give you confidence when you submit an opinion or provide feedback about the learning material so that it will lead to satisfaction in students about their abilities in the learning process. Positive behavior by students is presented by active participation in class discussions or group work, being able to interact with lecturers and fellow students, studying seriously, and always being present in every lecture meeting. Will positively affect student learning outcomes and will further provide student satisfaction.

This is as explained in the research conducted by Arjomandi et al. (2018) concerning the framework from Kahu (2013), in which student engagement has several elements, namely: cognition (deep learning), self-regulation, affect (enthusiasm, interest, feeling of belonging), and behavioral (time and effort, interaction, participation) can have an impact on student satisfaction.

5.4. The Effect of Learning Innovation on Student Satisfaction through Student Engagement

Salmon (2014) states that learning innovation is a strategic framework to encourage and improve learning experiences and outcomes. A strategic learning framework can involve students' activities and is one of the efforts to achieve student engagement. The hypothesis test results have been carried out to see the effect of student engagement as a mediating variable. The original sample was 0.292 or 29.2%, indicating that student engagement can mediate between learning innovation and student satisfaction. Furthermore, the results of the open-ended question that the researcher asked the respondents to strengthen bonding between lecturers and students were confirmed by statements from students, namely, "A teaching that has the combination with games as well. To make students feel more engaged on the following lesson". Student satisfaction shows that the interactive games prepared by the lecturers can strengthen the interaction between lecturers and students. A part of student engagement so that students' understanding of the subject matter increases further, students feel excited and motivated to participate in the next lesson. The motivation to learn in the end will provide student satisfaction with the efforts that lecturers make online can improve student learning outcomes. The results of research Wu (2010) found that the ability of lecturers to operate computers and prepare learning by using features and content that creates interaction in the classroom to make the learning atmosphere in the classroom comfortable is the primary determinant of student satisfaction.

The research results provide a theoretical contribution and ideas to develop learning innovation, especially to increase student engagement and student satisfaction on online classes. Practical contribution to the school or university level on the effort of learning innovations presents a novelty and benefit for its realization of effective and efficient education.

6. Conclusions

According to the research findings, the results can be concluded that the ability and efforts of lecturers to prepare and implement learning innovation have a positive and significant impact on student engagement and student satisfaction in learning online during the COVID-19 pandemic. The research results also show that student engagement owned by students can increase student satisfaction during the learning process. Finally, the contribution of student engagement in the indirect effect of Learning Innovation on Student Satisfaction shows that student engagement can partially mediate between learning innovation and student satisfaction. Further studies are suggested to explore other variables to be examined which can be influenced by learning innovation. They are price, quality, ambiance (driven by student satisfaction) or motivation, interest, identity, ICT skills and knowledge, technology acceptance, prior ICT experience, personality, and self-efficacy. Also, self-regulation, health, and well-being (driven by an internal factor of student engagement) and access to technology, usability, design, accessibility, technology choice, sense

of community, support, and assessment (driven by an external factor of student engagement).

References

Al-Tabany, T. I. B. 2014. *Mendesain model pembelajaran inovatif, progresif dan kontekstual.* (D. Trianto, Titik Triwulan Tutik (ed.); 1st ed.). Kharisma Putra Utama.

Angella, N.B., and Ricky. (2022). Do servant teachers practice what they preach? a case of academic servant leadership in a faith-based school in Indonesia. *International Journal of Business Studies*, 5(1), 109-117, DOI: https://doi.org/10.9744/ijbs.5.1.109-117

Arjomandi, A., Seufert, J., O'Brien, M., & Anwar, S. 2018. Active teaching strategies and student engagement: a comparison of traditional and non-traditional business students. *E-Journal of Business Education and Scholarship of Teaching*, *12*(2), 120–140.

Bond, M., & Bedenlier, S. 2019. Facilitating student engagement through educational technology: towards a conceptual framework. *Journal of Interactive Media in Education*, *2019*(1), 1–14.

Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. 2020. Mapping research in student engagement and educational technology in higher education: a systematic evidence map. *International Journal of Educational Technology in Higher Education*, *17*(2), 30.

Budin, H. 1999. The computer enters the classroom. In *Teachers College Record*. *100*(3), 656–669.

Chiu, C.-M., A, Hsu, M.-H., B, Sun, S.-Y., Lin, T.-C., C, & Sun, P. 2005. Usability , quality , value and e-learning continuance decisions related papers. *Computers & Education*, *45*, 399–416.

Cole, M. T., Shelley, D. J., & Swartz, L. B. (2014). Online instruction, e-learning, and student satisfaction: A three year study. *International Review of Research in Open and Distance Learning*, *15*(6), 111–131.

Gray, J. A., & DiLoreto, M. 2016. The effects of student engagement, student satisfaction, and perceived learning in online learning environments. *NCPEA International Journal of Educational Leadership Preparation*, *11*(1), 98–119.

Hair, J. F., Jr. G. Hult, Tomas M., Ringle, C. M. 2016. *A* primer on partial least squares structural equation modeling *(PLS-SEM)*. in *European Business Review*, 2nd ed, Sage.

Hakim, A. A., & Kawamorita, H. 2020. A comparative study of satisfaction in pre and mid Covid-19 pandemic: a case study of international students in Ondokuz Mayis University, Turkey. *International Journal of Economics & Strategic Management of Business Process, 17*(January), 72–77.

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in Higher Education*, *38*(5), 758–773.

Marlius, D. (2018). Pengaruh dimensi kualitas pelayanan website akademik terhadap kepuasan mahasiswa pada STIE "KBP." *Jurnal Ipteks Terapan*, *12*(2), 116.

Means, B., and Neisler, J., with L. R. A. 2020. *Digital promises. in suddenly online: a national survey of undergraduates during the Covid-19 pandemic*. Retrieved from https://digitalpromise.org/wp-content/uploads/2020/07/ELE_CoBrand_DP_FINAL_3.pdf

Meyer, K. A. 2014. Student engagement in online learning: What works and why. *ASHE Higher Education Report*. Vol 40 Issue 6.

Muzakki, M.A., and Tarigan, Z.J.H. 2020. Analysis of the effect of academic service quality on student loyalty through student satisfaction and organizational performance. *Petra International Journal of Business Studies*, *3*(1), 47-53.

Purwanto, A., Fahlevi, M., Santoso, B.P., Radyawanto, S. A., & Anwar, C. 2020. Exploring the Covid-19 pandemic impact on the Indonesian student's performance. *Journal of Critical Review*, *7*(15), 2020–2035.

Putra, I. P. (2020). *Ternyata, belajar daring sudah ada sejak 1980 di Indonesia*. Retrieved from. https://www.medcom.id/pendidikan/news-pendidikan/8N00jB7N-ternyata-belajar-daring-sudah-ada-sejak-1980-di-indonesia.

Rahmawati, D. (2013). Analisis Faktor-Faktor Yang Mempengaruhi Kepuasan Mahasiswa. *Jurnal Economia*, 9(1), 52–65.

Salmon, G. 2014. Learning innovation: A framework for transformation. *European Journal of Open, Distance and e-learning*, *17*(2), 220–236.

Smith, K. 2011. Teaching in higher education cultivating innovative learning and teaching cultures : A question of garden design. *November 2014*, 37–41.

Sugiyono. (2010). *Metode penelitian kuantitatif, kualitatif dan R&D* (11th ed.). Alfabeta.

Trowler, V., & Trowler, P. 2010. Student engagement executive summary higher education academy student engagement project. *The Higher Education Academy*, *July*, 1–8.

Weerasinghe, I. S., & Fernando, R. L. (2017). Students' satisfaction in higher education. American Journal of Educational Eesearch, *5*(5), 533-539.

Wilkins, S., & Balakrishnan, M. S. 2013. Assessing student satisfaction in transnational higher education. *International Journal of Educational Management*, *27*(2), 143–156.

Yusoff, M., McLeay, F., & Woodruffe-Burton, H. 2015. Quality assurance in education dimensions driving business student satisfaction in higher education. *Quality Assurance in Education*, *23*, 86–104.

Zhou, N. 2021. Student satisfaction at australia's universities drops to all-time low in 2020. Retrieved from https://www.theguardian.com/australia-news/2021/mar/19/student-satisfaction-at-australias-universities-drops-to-all-time-low-in-2020.