The Influence of Digital Learning Engagement on Indonesian University Students' Online Satisfaction During The COVID-19 Pandemic

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Abstract

We examine students' learning engagement and satisfaction in using technology by analyzing how learning engagement influences online satisfaction such as through communication and usability, the teaching process, and the instructional content. This research focuses on a mixture of SDT and TAM. We propose a structural model that explains students' learning engagement and online satisfaction with specific dimensions. The empirical test was a model with quantitative data from 52 universities in Indonesia involving 1002 students using SMART PLS version 3. Our research found that learning engagement has a significant influence towards online satisfaction with a big determinant value. In particular, the digital learning engagement has three strong interlinked elements: behavioral, emotional, and cognitive engagement. Other variables are online satisfaction which is a strong element for the teaching process and instructional content but lower for communication and usability. These findings have several important implications for learning engagement research and practice.

Keywords
Digital-Learning, Engagement, Online-Satisfaction.

1. Introduction

There are learning challenges in seeing the fact that the education world is changing during a crisis due to COVID-19. Until April 1, 2020, UNESCO recorded that at least 1.5 billion school-age children were affected by COVID-19 In countries, including 60 million in Indonesia. The Ministry of Education and Culture of Indonesia responded by doing physical distancing to minimize the spread of COVID-19 with a policy of learning from home through online learning. The implementation of learning from home, with the use of information technology that has been applied suddenly, often shocks educators and students, including parents in the house. However, the online learning that took

place as a result of the COVID-19 pandemic shocked almost all segments in our country. According to data from the Minister of Education of Indonesia, Indonesia also faces several real challenges that must be addressed immediately: (a) technological imbalances between schools in big cities and regions, (b) limited teacher competence in the use of learning applications, (c) limited resources in the use of educational technology such as the Internet and quotas, and (d) teacher-student-parent relations in online learning that are not yet integral (Web, 2020).

The study is based on the self-determination theory (SDT) of motivation and engagement (Lan and Hew, 2020) and the technology acceptance model (TAM) and has two research objectives. It tries to solve the problems of point b and point d above by responding to any input for action and find solutions for students regarding their rights to education to be fulfilled. Previous research found that a summative assessment is conducted to evaluate the students in terms of their grades to assess their actual learning. An information system as well as environmental factors positively impact the personal learning system and cause a positive relationship between personal learning and student grades (Ritanjali et al., 2020). Cognitive engagement, behavior engagement, and emotional engagement are significantly associated with hybrid learners' satisfaction. The findings indicate that since hybrid learning keeps all options available, to experience satisfying learning, students do not need to have certain competences but need cognitive engagement competence, which is correlated with learners' cognitive ability to figure out the right mix of learning options (Xiao et al., 2020), (Lan and Hew, 2020). The self-determination theory model as a motivational tool can significantly predict student engagement. Perceived competence registers the largest positive impact, and perceived relatedness has a slightly negative impact on engagement. The three components of engagement can also predict learners' perceived learning. Emotional engagement shows the largest positive impact. The implications of the findings can help MOOC designers and educators to better engage their participants. Lan and Hew successfully proved that explicit engagement is absent from the education theory and found that the self-determination theory works as a motivational means of energy and effort for students to learn (Lan and Hew, 2020). Xiao et al. found that hybrid learning is costly for learners. Since hybrid learning keeps all options available, their experiences of satisfying learning need cognitive engagement competence to figure out the right mix of learning options (Xiao et al., 2020).

1.1 Objectives

Based on previous research, the self-determination theory model is absent related to online satisfaction. The uniqueness from this research compared to previous research is that it focuses on specific indicators of dimensions of learning engagement and online learners' satisfaction. It is very important to have input awareness of an information system. Then, it is important to look at how much of an influence the learning engagement has on the online satisfaction of each dimension of learner satisfaction in which the indicators are effective. It is pertinent to find which parts of technology institutions work well to support learners' satisfaction. The purpose of this research is to reduce the limitations of learners' competence in the use of learning applications and teacher-student relations in online learning that are not yet integral.

The research questions in this study aim to address the following three issues: (1) What are the dimensions of digital learning engagement? (2) What are the dimensions of online satisfaction? (3) What is the influence of learning engagement on online satisfaction? The results are expected to provide a better understanding of learning engagement, so that educational institutions can provide technology education platform devices during the COVID-19 pandemic in Indonesia.

2. Literature Review

The theoretical framework consists of engagement components based on the constructs of the engagement theory and online satisfaction (Lin et al., 2018). In this study, digital engagement refers to the manifestation of learning motivation using a digital channel, which means that students utilize their energy and effort to achieve the desired learning goals (Christenson, 2012), (Lin et al., 2018), (Lan and Hew, 2020). Student learning engagement has three interlinked elements: behavioral, emotional, and cognitive engagement.

Self-Determination Theory (SDT) - Digital Learning Engagement

The self-determination theory can explain a theory of motivation to understand and enhance the engagement that arises from that motivation. It deals with how classroom conditions sometimes support but other times interfere with students' engagement. The meeting is how actively involved the students are in a learning activity that involves assessments of one's concentration, attention, and effort (behavioral engagement). There is the presence of task-facilitating emotions such as interest and the absence of task-withdrawing emotions such as distress (emotional engagement). It looks at one's usage of sophisticated rather than superficial learning strategies (cognitive engagement) and the extent to which one tries to enrich a learning experience rather than just passively receive it as a given as agentic engagement (Christenson, 2012). Many educators consider student involvement an essential aspect of the teaching and learning context because it can influence student retention, learning, achievement test scores, and graduation (Lan and Hew, 2020). The self-determination theory framework correlates with psychological people satisfied. Students who perceive themselves to be acting with a sense of autonomy, competence, and relatedness during the learning activity experience high-quality motivation, while students who have these three needs neglected or are frustrated during an instruction experience low-quality motivation or engagement (Christenson, 2012).

The self-determination theory is unique in that it emphasizes the instructional task of vitalizing students' inner motivational resources as a critical step in facilitating high-quality engagement to goals that contribute to their classroom engagement (Christenson, 2012). SDT addresses how students' inner resources interact with the classroom conditions to result in varying levels of student engagement. It explains students' successful versus unsuccessful academic socialization. This mini theory explains how intrinsic goals support psychological need satisfaction and foster well-being and how extrinsic goals neglect psychological needs and foster ill-being. The cognitive evaluation theory describes how external events (e.g., rewards, feedback) affect intrinsic motivational processes. The causality orientation theory highlights individual differences in how students motivate themselves. Some students tend to rely on autonomous and self-determined guides to action to initiate and sustain their classroom engagement. In contrast, others tend to rely on controlled and environmentally determined principles (Christenson, 2012).

Technology Acceptance Model (TAM) from the Perspective of the Self-Determinant Theory (SDT) - Online Satisfaction

Internet technology has become an essential technological tool in changing the education environment as a flexible network. This platform refers to improve task efficiency, knowledge acquisition, and communication, and decision-making quality. A number model theory proposes to understand this ambiguity about technology usage. TAM has achieved wide acceptance. It neglects to focus on evaluating technology usages, such as user satisfaction and performance impact (Isaac et al., 2018). This research connects this technology acceptance model theory from the self-determination theory perspective (Lee et al., 2015).

Regarding the factors that stipulate learning satisfaction, we will review a series of authors and their contributions to clarify it. Many researchers emphasize that satisfaction is one of the most critical factors in determining the quality of online instruction. The previous researcher, So and Brush found that course structure, emotional support, and communication medium are crucial factors associated with student satisfaction (So & Brush, 2008). The degree of student satisfaction with courses has played an essential role in evaluating the effectiveness of distance learning. When one's experience is equal to or succeeds one's expectations, the individual feels satisfied instead of an experience under one's expectations and makes the individual feel unsatisfied (Topala and Tomozii, 2014).

Learning satisfaction means that learners get respect from the teacher to talk about the teacher's attitude toward training, the technology used, the course management, the staff, the support services, and the informal communication such as after-school communication (Topala and Tomozii, 2014). Communication and usability between the teacher and students are crucial (Kangas et al., 2018), as well as communication and usability, user experience in the teaching process, instructional content, and interactions and evaluations as a repurchase (Xiao et al., 2020), (So & Brush, 2008).

3. Methods

Instrument Validation

Partial Least-Squares (PLS) (Hair et al., 2017) with Smart PLS 3.0 (Francis, 2017) was used as the analysis technique to predict how digital learning engagement influences online satisfaction and to predict the second-order of both variables.

Instruments

We observed the variables of digital learning engagement and online satisfaction. The dimensions of behavioral engagement, emotional engagement, and cognitive engagement of digital learning engagement referred to previous research (Xiao et al., 2020), (Lin et al., 2018). Online satisfaction (e-satisfaction) as the dependent variable referred to the concept developed by So and Brush. The dimensions of online satisfaction are communication usability, teaching process, instructional content and interaction, and evaluation as repurchase (So & Brush, 2008). The instrument model referred from previous research on a literature review, in which all the variables developed into the second order. Digital learning engagement and online satisfaction reflect four dimensions. These measurements provide below:

Digital Learning Engagement or L_ENG [references (Lin et al., 2018), (Xiao et al., 2020)]
Behavioral Engagement (B_ENG)
a. When I am in an online course, I 'act' as if I am learning (LE02).
b. I can consistently pay attention when I am taking an online course (LE03).
Emotional Engagement (L_ENG)
a. I like taking an online course (LE04).
b. The online classroom is a fun place to be (LE05).
c. I am interested in studying in an online course (LE06).
Cognitive Engagement
a. I check my schoolwork for mistakes (LE07).
b. I study at home even when I do not have a test (LE08).
c. I try to look for some course-related information on resources such as television, journal papers, magazines, etc. (LE09).

Online Satisfaction or E_SAT (References: [(So & Brush, 2008), (Xiao et al., 2020)]

Communication and Usability (COM_U)

a. Online Teams / Zoom/communication is a helpful tool in this COVID-19 time (ES01).

b. Lecturers have successfully used the online system to deliver the material and other assignments (ES02).

Teaching Process (TEA_P)

a. This course is a useful learning experience (ES03).

b. My quality of learning from online lectures is better than face-to-face sessions (ES04).

Instructional Content (INS_C)

a. Overall, the lecturer for this course meets my learning expectations (ES05).

b. Overall, this course meets my learning expectations (ES06).

Interactions and Evaluations (Repurchase) (INT_E)

a. We have two ways of interacting according to the online time course (ES07).

b. As a result of my experience with this course, I would like to take another online course in the future (ES08).

4. Data Collection

Participants

This research data was collected from respondents who were undergraduate and graduate students from almost all the universities in Indonesia from 52 private universities in Indonesia by no random sampling. The total participants who filled in the Goggle Form were Indonesian higher education students, with 1,002 students from state universities (21%) and private universities (79%). Also, a survey spread conducted like a "snowballing" was passed from one student to another one. The respondents were predominantly female (59.2%), majoring in Business, Management, and Finance programs (62.6%). They were between first year (35%), second-year (26%), third-year (30%), and fourth-year (9%) levels.

5. Results and Discussion

5.1 Numerical Results

The convergent and discriminant validity quality validated the quality of the model. All the standards for the convergent validity are satisfied. The factor loadings of their relative constructs exceed 0.70. The composite reliability of each construct exceeds 0.70, and all average variance extracted (AVE) values range from 0.545 to 0.717 (AVE > 0.50), exceeding the variance due to the measurement error for that construct. The discriminant validity supported the square root of the average variance extracted (AVE) of a construct is higher than any correlation with another construct (Hair et al., 2017). The second-order measurement model showed a logical relationship between variables and their dimensions and between a dimension and its items or indicators. The validity analysis measures the factor loading score for items or indicators (Table 1).

5.2 Graphical Results

Table 1. Descriptive Result of The Validity

| Online Satisfaction	Factor Loading (> 0.7)	t-Value	Digital Learning Engagement	Factor Loading (> 0.7)	t-Value
ES01 <- COM_U	0.724	21.757	LE02 <- B_ENG	0.867	37.578
ES01 <- E_SAT	0.452	16.131	LE02 <- L_ENG	0.766	40.211
ES02 <- COM_U	0.891	29.037	LE03 <- B_ENG	0.803	44.753
ES02 <- E_SAT	0.685	35.297	LE03 <- L_ENG	0.640	30.618
ES03 <- TEA_P	0.910	82.865	LE04 <- E_ENG	0.805	40.222
ES03 <- E_SAT	0.811	49.457	LE04 <- L_ENG	0.687	32.204
ES04 <- TEA_P	0.914	91.560	LE05 <- E_ENG	0.866	41.234
ES04 <- E_SAT	0.825	45.341	LE05 <- L_ENG	0.776	40.568
ES05 <- INS_C	0.885	90.362	LE06 <- E_ENG	0.661	29.317
ES05 <- E_SAT	0.768	48.736	LE06 <- L_ENG	0.633	27.842
ES06 <- INS_C	0.905	66.110	LE07 <- C_ENG	0.864	37.399
ES06 <- E_SAT	0.841	47.197	LE07 <- L_ENG	0.784	39.808
ES07 <- INT_E	0.850	48.499	LE08 <- C_ENG	0.610	18.433
ES07 <- E_SAT	0.731	45.243	LE08 <- L_ENG	0.482	16.289
ES08 <- INT_E	0.845	51.784	LE09 <- C_ENG	0.898	48.564
ES08 <- E_SAT	0.721	39.885	LE09 <- L_ENG	0.781	44.326
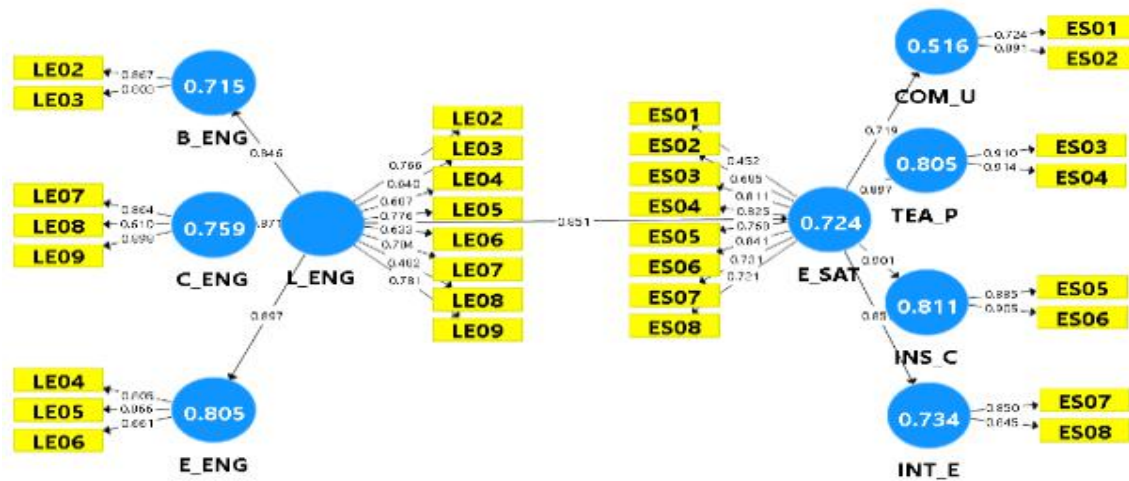
Figure 1. SEM Analysis of the Research Model

Table 1 and Figure 1 summarize the structural model testing results. Figure 1 shows the path coefficient for each path along with its significance (p-value < 0.01) and the R^2 for each endogenous variable. Table 2 shows the statistical significance of the relations in the model in more specific detail. The indicators that have < 07 in a variable actually have more than 0.7 in the dimension indicators e.g. ES01 <- COM_U loading factor 0.724 more than 0.7 but ES01 <- E_SAT loading factor 0.452 < 0.7, and the T-values are valid because a loading factor of more than 0.7 can reflect the specific characteristics very well (Kock , 2013), (Hair et al., 2017), (Francis, 2017). In that case, even T-values are significant but the indicators of ES01 cannot measure the specific characteristics well. It happens for indicators of ES02 <- E_SAT and ES01 <- E_SAT for online satisfaction. Likewise, digital learning engagement found the same results as indicators LE03 <- L_ENG, LE06 <- L_ENG, LE08 <- L_ENG, and LE06 <- E_ENG. It means that the specific characteristic indicators of a dimension can be more meaningful than an indicator directly related to a variable. The second order can help to explain the specific indicator of a variable.

Table 2. Descriptive Results for The Path Coefficients

Influence	β Values	Mean	STDEV	t-Value	R^2
E_SAT -> COM_U	0.719	0.719	0.020	36.713	0.516
E_SAT -> INS_C	0.901	0.900	0.008	81.000	0.811
E_SAT -> INT_E	0.857	0.857	0.010	82.057	0.734
E_SAT -> TEA_P	0.897	0.897	0.007	127.858	0.805
L_ENG -> B_ENG	0.846	0.846	0.011	77.152	0.715
L_ENG -> C_ENG	0.871	0.871	0.008	102.631	0.759
L_ENG -> E_ENG	0.897	0.897	0.008	115.446	0.805
L_ENG -> E_SAT	0.851	0.851	0.010	85.461	0.724

Table 2 and Figure 1 summarize the structural model testing results. Figure 1 shows the path coefficient for each path. Its valid significance (p-value < 0.01) or T-value higher than the T-table, the value of the path coefficient higher than > 0.7, and the R2 for each endogenous variable high except for E_SAT -> COM_U (online satisfaction reflected by communication, and usability has the lowest contributed determinant).

Table 3. Descriptive Results for The Total Indirect Effects

Influence	β Values	Mean	STDEV	t-Value
L_ENG -> E_SAT -> COM_U	0.611	0.612	0.020	30.464
L_ENG -> E_SAT -> INS_C	0.766	0.766	0.013	59.524
L_ENG -> E_SAT -> INT_E	0.729	0.729	0.014	50.377
L_ENG -> E_SAT -> TEA_P	0.763	0.763	0.012	62.488

Table 3 summarizes the structural model testing results of the total indirect effects. Digital learning engagement leads to communication and usability through online satisfaction (L_ENG -> E_SAT -> COM_U), and the portion of the indirect effect is equal to 0.611 and in which digital learning engagement leads to instructional content through online satisfaction (L_ENG -> E_SAT -> INS_C) and has a path coefficient equal to 0.766. This indirect path coefficient gives a higher value path than the others. Therefore, digital learning engagement leads to repurchase (interactions and evaluations), which online satisfaction is mediating variable for it (L_ENG -> E_SAT -> INT_E), and it has an indirect effect coefficient path equal to 0.727 > 0.7 with a strong relationship. For the last one, digital learning engagement leads to the teaching process. It which

online satisfaction is mediating variable for it (L_ENG -> E_SAT -> TEA_P), which is equal to 0.763. This indirect path coefficient has a strong relationship with a high value of β > 0.7 (Hair et al., 2017).

5.3 Proposed Improvements

This study introduces digital learning engagement SDT as energy of motivation factors into TAM, in the context of online lecturers using an online platform in the current COVID-19 situation, in proposing SDT combined with TAM. While many researchers have already recognized the importance of integrating motivational factors into TAM (Nikou et al., 2017), (Sriwardiningsih et al., 2015), not many studies exist with a few exceptions (Ritanjali et al., 2020), (Nortvig, et al., 2018). Previous researchers focused on construct autonomy, competence, and relatedness from the self-determinant theory of motivation as energy and effort (Sriwardiningsih, 2016), but this study sees it from a different side, which employs the construct of behavioral engagement, emotional engagement, and cognitive engagement from the SDT of engagement as the energy of motivation (Ritanjali et al., 2020), (Kangas et al., 2018), (Nortvig et al., 2018), (Han et al., 2020) to explain and predict the factors influencing online satisfaction to use an education platform based on technology acceptance such as the Web, Zoom, an online discussion forum, and so on during the COVID-19 pandemic. They change from being face-to-face to online learning (Web, 2020). This employs the construct of online satisfaction using technology such as communication and usability, teaching process, instructional content, and interactions and evaluations as a repurchase of TAM (Lin et al., 2018), (Han et al., 2020).

Exploring engagement with the lens of SDT helps us to optimize autonomous learning engagement (Earl, 2019). It is necessary for 21st century learners. Digital learning engagement contexts support online satisfaction. Furthermore, to the best of our knowledge, the study is one of the first to explicitly focus on students' online satisfaction acceptance of an education platform during the pandemic from their university (So & Brush, 2008), (Xiao et al., 2020). While many studies exist that explore the digital learning engagement in online satisfaction of technology acceptance for learning, there is a gap in the literature about the motivation between engagement in online satisfaction using an education platform ((Nikou et al., 2017), (Lan and Hew, 2020). Previous research found that students who act with a sense of motivation during a learning activity experience high-quality motivation, while those who have neglected motivation will experience frustration during their interactions (Christenson, 2012). Other research found ambiguity about technology usage, in that the acceptance model neglected satisfaction and performance impact and focused more on evaluating technology usage (Isaac et al., 2018). The study is a step forward towards the understanding of the factors driving learning engagement to specific characteristics of technology acceptance satisfaction.

These results emerged from a previous analysis. Our study suggests that the digital learning engagement used in a university education platform contributes significantly towards behavioral engagement, emotional engagement, and cognitive engagement. When the digital learning engages students, they will be engaged in behavior to act as learning and consistently pay attention in an online course. This finding is in line with the previous self-determination theory (SDT) with a research lens in engagement, specific energy, and effort of student motivation to behave (Xiao et al., 2020), (Lin et al., 2018), [21, (Lee et al., 2015), (Sriwardiningsih et al., 2015). Students engage with their emotions in taking an online course, such as if it is a fun place to be an interesting to study in the online course. This finding is in line with previous SDT in the lens of student emotional engagement (Xiao et al., 2020), (Lin et al., 2018). Students engage with their cognitive perspective, such as checking their schoolwork for mistakes and trying to look for some course-related information on other courses. This finding is in line with previous SDT research (Xiao et al., 2020), (Lin et al., 2018), (Christenson, 2012), (Lan and Hew, 2020), (Ritanjali et al., 2020), (Nortvig, et al., 2018), (Bockmier-Sommers et al., 2017).

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According to the results which emerged from the previous analysis, our study suggests that online satisfaction used in a university education platform contributes significantly to communication and usability, the teaching process, repurchase (interactions and evaluations), and instructional content. When the online satisfaction is acceptable, students are willing to communicate and use online media such as Teams / Zoom/ communication. Also, students follow the material and other assignments given by the lecturer. This finding is in line with the previous technology acceptance research (Xiao et al., 2020), (Nortvig, et al., 2018). The lecturer's attitude in communicating toward lecturing and informal communication with the technology used will support student satisfaction (Lin et al., 2018). Students are willing to follow the teaching process by the lecturer because of a useful learning experience for the

student and student satisfaction from learning online is better than the face-to-face method. This finding is in line with previous technology acceptance research (Xiao et al., 2020), (Nortvig, et al., 2018), (Kangas et al., 2018), (Han et al., 2020). Students are satisfied because the overall instructional content from both the performance of the lecturers and content meet their learning expectations. This finding supports previous acceptance research (So & Brush, 2008), (Lin et al., 2018). Students will interact and evaluate as a repurchase action of satisfaction. They find two ways of interacting according to an online time course, and according to the results of experience from this course they would like to take another online course in the future. This finding is in line with previous technology acceptance research (Xiao et al., 2020), (Nortvig, et al., 2018).

5.4 Validation

The involvement of digital learning can indirectly evaluate the impact of online satisfaction on technology acceptance-based educational platforms (Table 3). First, digital learning engagement leads to communication and usability through online satisfaction. Online satisfaction as pleasure using educational media is mediated by digital learning engagement and communication usability. When communication and usability support SDT's basic psychological needs, students are more engaged and satisfied (Lan and Hew, 2020), (Nortvig, et al., 2018), (Bockmier-Sommers et al., 2017). Communication and usability were significantly associated with digital learning engagement, but their contribution was lower than other satisfaction dimensions, namely the teaching process, instructional content, and repurchase. The low level of digital learning involved with communication and usability proves the problem of the limited competence of teachers or lecturers in the use of critical learning applications (Web, 2020). The low technology competence can be an opportunity for more practice through digital teaching to increase content knowledge, share information, and communicate with students using digital platform device skills. Previous research supports this research (Topala and Tomozii, 2014).

Second, online satisfaction can mediate digital learning engagement leads to instructional content. It means that online satisfaction using an education platform mediated using digital learning engagement instructional content. When instructional content supports the SDT basic psychological need, students are more engaged and satisfied (Lan and Hew, 2020) (Nortvig, et al., 2018), (Bockmier-Sommers et al., 2017). However, the instructional content was significantly related to digital learning engagement with a high contribution, which shows the number of the determination value (R2). A high level of digital learning engages one to the instructional content. This finding aligns with previous SDT research (Hair et al., 2017), (Earl, 2019). This finding implies that the content and online material delivered by the lecturer should develop to be involved with the style of the young generation. It eliminates the boredom of students in an online class. The previous research supports this suggestion research (Hair et al., 2017), (Earl, 2019).

Third, digital learning engagement leads to repurchase (interactions and evaluations), online satisfaction mediate that variable. It means that digital learning engagement mediated online satisfaction using an education platform to interactions and evaluations (repurchase). When the teaching process supports the SDT's basic psychological needs, students are more engaged and satisfied (Lan and Hew, 2020), (Nortvig, et al., 2018), (Bockmier-Sommers et al., 2017). However, student acceptance of interacting and evaluating (repurchasing) was significantly related to digital learning engagement with a high contribution. It shows the number of the determination value (R2). A high level of digital learning engaged with interacting and evaluating (repurchasing). This finding is in line with previous SDT research (Earl, 2019). According to the second goal of this research in which teacher-student-parent relations in online learning are not integral yet (Web, 2020), it is not proven. It may be that the scope of the education problem is too general, and this research only samples students in higher education who have a mature age, wisdom, and responsibility. This finding implies that higher education can engage with this young generation by being active in online interactions using a mobile application for managing the course, assignments, discussions, and administration. Previous research supports this suggestion (Nikou et al., 2017).

Fourth, online satisfaction mediated digital learning engagement leads to teaching processing. It means that the digital learning engagement instructional content can intervene online satisfaction using an education platform. When the teaching process supports the SDT basic psychological need, students are more engaged and satisfied (Lan and Hew, 2020), (Nortvig, et al., 2018), (Bockmier-Sommers et al., 2017). In the teaching process, a high level of digital learning engages the teaching process. This finding aligns with previous SDT research (Hair et al., 2017), (Earl, 2019). The implication of this finding is in the lens of SDT and TAM. The quality of the competence skills of the online lecturers, content, system, and two-way interactions should be updated and developed because the millennial generation has a disruption in learning. This situation can affect higher education in the present and the future.

6. Conclusion

Overall, our results align with previous basic research that integrates self-determination into technology acceptance, confirming a relationship between engagement and technology acceptance. Also, our proposed model ensures TAM in the context of online satisfaction using an education platform. The study's main contribution is the proposed integrated model of SDT and TAM to explain and predict students' satisfaction to use an education technology platform. However, more research found towards the direction of exploring engagement and the

technology acceptance context. Different educational contexts with diverse academic levels, such as elementary, junior, and senior high school samples, need to be employed. A deeper understanding of the factors driving engagement and satisfaction based on technology acceptance will help education stakeholders to design better the assessments used for education platform devices. Taking into consideration both acceptance and engagement factors, more engaging can be designed and implemented.

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