

The Relationship between Synchronous Online Training Preference and Online Student Engagements

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ARTICLE INFO	ABSTRACT
<p>Article History:</p> <p>Accepted: 16-06-2022 Approved: 06-07-2022</p> <hr/> <p>Keywords:</p> <p><i>online student engagement; synchronous online training</i></p> <hr/> <p>Correspondence Address:</p> <p>Saida Ulfa Universitas Negeri Malang E-mail: saida.ulfa.fip@um.ac.id</p>	<p>Abstract: Online training during the pandemic was commonly held using the synchronous learning method. The aim of this study was to explore the relationship between synchronous online training preference, gender difference, and online student engagements (OSE). This study was analyzed with Structural Equation Model (SEM) by using SmartPLS 3 software. The participants of this study involved 35 online training participants and produced the following findings (1) synchronous online training preference has a positive relationship with OSE variables, (2) The relationship between OSE variables is positive, (3) a gender has a positive relationship with skills, participation, and performance, while gender has a negative relationship with emotions and synchronous online training preference.</p>

Synchronous online lecture is a common learning method used during the Covid-19 pandemic by utilizing web-based conference platforms, such as Zoom and Google Meet. It is used for real-time interactions between teachers and students. This learning method is effective in substituting face-to-face learning because this method meets the requirements of a conscious experience where there is an optimal state of absorption and engagement as well as a sense of presence (Cesari et al., 2021). In term of engagement involves students devoting their time and thoughts to learning the material and trying to achieve skills in a lesson.

Engagement Includes individual attitudes, thoughts, and behaviors as well as communication with others (Dixon, 2015). In a learning process, engagement needs to be augmented with a sense of presence, because a student will feel a presence when he or she can do activities during the learning process as well as interact with others. In case this engagement and sense of presence get weakened, it will affect learning motivation and impact students' learning performances and outcomes.

Fredricks et al. (2004) classify engagement into three dimensions: behavioral engagement which is related to attendance and involvement in psychical (in virtual or in real life); cognitive engagement which is defined as the willingness of a student to take on the learning task which reflects the cognitive presence in constructing new notions, problem-solving, and so on; emotional engagement is related to positive affective reaction.

During this Covid-19 pandemic, not only formal learning shifts from face-to-face learning to online learning but non-formal learning such as training and workshops are also delivered in online learning mode, which generally uses synchronous online lectures. This research objective was to explore the relationship between synchronous online training, gender difference, and online student engagements (OSE). This synchronous online training mode is the individual preference, whether their personal choice of training mode affects the OSE variables. Because not all participants prefer online training as their learning method for their training course.

The relationship between those variables was visualized with structural equation modeling (SEM) using SmartPLS 3 software. SEM is a methodology for evaluating the relationship multivariate causal relationship. It will describe the relationship between variables. The aim of this research was to explore the relationship between endogenous and exogenous variables in this case the synchronous online training, the OSE variables, and, gender difference.

Related Works

Online learning is part of distance learning which is delivered over the internet without students having to be physically present in class (Nguyen, 2015). One of the limitations of learning at a distance is the lack of interaction. For more than a decade, researchers said that one of the barriers to student success in online learning is the lack of social interaction (Muilenburg & Berge, 2005). Until now, especially during the Covid-19 pandemic, the lack of social presence and the sense of community associated with face-to-face teaching and learning challenged both teachers and students (Al Mahadin & Hallak,

2021). In fact, according to Baber (2021), social interaction has a positive impact on the effectiveness of online learning. This social interaction has an impact on student engagement in learning as well.

According to Kennedy (2020) interaction greatly influences the development of student engagement levels. The level of interaction is divided into three types, namely (1) Learner-Instructor Interaction, (2) Learner-Learner Interaction, and (3) Learner-Content Interaction (Moore, 1989). Kennedy explained that conversation in the form of dialogue and feedback between teacher and student will result in interaction, and this activity is the fundamental of learning and education. This activity is categorized as a learner-instructor interaction type. Peer-based learning and group work are examples of learner-learner interactions. A student who interacts with digital media can be categorized as learner-content interaction. These three types originally were not designed specifically for online learning but they were intended for traditional classroom learning with a face-to-face mode. These three types of interactions are still in harmony with the current online learning setting.

Interaction in online learning currently refers to the type of synchronous and asynchronous interaction. Synchronous interactions are face-to-face meetings that occur in real-time over the internet, therefore immediate feedback can be received by the students. Technological developments allow both types of communication to be carried out in an online learning environment. This synchronous mode process can be carried out using video web conference platforms such as Zoom, Google Meet, and others. While Asynchronous interactions occur with a delay. Several types of platforms can be used to perform asynchronous communication, including using learning management system (LMS) platform, social media platforms (eg Facebook, Instagram), learning social network platforms (eg. Edmodo, Schoology, etc.), messaging platforms (eg. Whatsapp, telegram, etc). Synchronous interaction provides learning experiences to students such as face-to-face interaction in traditional classrooms, it keeps students continuously engaged in learning (Khan, Atta, Sajjad, & Jawaid, 2021). Physical learning involvement is categorized as behavioral engagement which is one of the important points in learning.

Dixson (2015) constructs student engagement by combining the notion of social constructivism and the community of Inquire model (CoI). The social constructivist assumes that online learning is an active learning process where each student can construct their own knowledge by optimizing collaborative and cooperative learning methods (Ally, 2004). The CoI proposes that the necessary presences for the effective community of learners consist of three, namely social presence, teaching presence, and cognitive presence (Akyol & Garrison, 2011). Dixson (2015) describes student engagement as student activities in allocating time, energy, thoughts, efforts, and something related to this and feelings into their learning. So that the OSE developed by Dixson (2015) includes student activities related to skills, emotions, participation, and performance.

METHOD

Research Procedure

Research Participants

This study involved 35 participants with consisted of females (37,1%) and males (62,9%). Most of the participants are master's and doctoral students of the Educational Technology Department, State University of Malang. In addition, several participants also came from other institutions in Indonesia.

Data Collection Procedure

Activities: Online workshops were held through synchronous learning using a video web conference platform three times, each meeting was held once a week. The theme of the workshop was systematic literature review research. This training teaches the theory and practice of systematic literature review, including tutorials on how to use the systematic literature review online tools such as covidence.org.

At the end of the workshop, all participants were asked to fill out an online questionnaire with the following parameters (Adopted from Dixson (2015) See Table 1). Participants fill in their answers with a 5-point Likert scale that describes how well each behavior, thought, or feeling was characteristic of them or their behavior.

Table 1. Questionnaire Parameters

Online Student Engagement Factors				Online Training Model Preference	Gender
<i>Skill</i>	<i>Emotions</i>	<i>Participations</i>	<i>Performance</i>		
Study regularly	Put forth effort	Have fun in online chats	Understanding the learning materials	Synchronous Learning	Female Male
Stay up on reading	Find ways to make materials relevant	Participate actively in forums	Applying the acquired skills in the Job		
Look over class notes	Apply to my life	Help fellow students			
Be organized	Find ways to make material interesting	Engage in online conversations	Continuous Learning		
Listen/read carefully	Really desire to learn				
Take good notes over readings, PPT, video lectures					

Conducting statistical analysis by using structural equation modeling (SEM). SEM was used to analyze the model and specify multiple independent and dependent variables (Bag, 2015). One of the benefits of SEM is representing results by visual diagrams and tables. SEM models structure equations by combining the concepts of factor analysis and regression concepts. Factor analysis in the measurement model explains the relationship between variables and their indicators and regression analysis through structural models.

FINDINGS AND DISCUSSION

Adjustment Quality for Structural Equation Modeling (SEM)

In this research, the stages carried out on the adjusted model in SEM based on Ringle et al. (2014), consist of several steps (1) Measuring the SEM by analyzing the Convergent Validities obtained by the observations of the Average Variance Extracted - (AVE); (2) Guaranteeing the Convergent Validity of the SEM by observing the internal consistency values (Cronbach's Alpha) and the Composite Reliability; (3) Evaluate the Discriminant Validity of the SEM by analyzing indicators that the constructs or latent variables are independent of one to another The following are SEM adjustment quality components (see Table 2).

Table 2. SEM Adjustment Quality

	Average Variance Extracted (AVE)	Composite Reliability (CR)	Cronbachs Alpha (CA)	R Square
Emotions	0.437	0.817	0.727	0.005
Participations	0.642	0.843	0.723	0.233
Performance	0.796	0.886	0.745	0.650
Sex	1.000	1.000	1.000	0.400
Skill	0.451	0.829	0.750	0.467
Online Synchronous Training	1,000	1,000	1,000	0.005

Henseler, et al (2009, P.299) "An AVE value of at least 0.5 indicates sufficient convergent validity, it means a latent variable is able to explain more than half of the variance of its indicators on average. Based on Table 2, the AVE values are less than 0.5, namely emotions and skills variables with values of 0.437 and 0.451, respectively. According to Fornell and Larcker (1981), in the case of AVE is less than 0.5, but its composite reliability is higher than 0.6, then it enables us to conclude that the convergent validity of the construct is still adequate. The obtained CR values for emotions and skills were 0.817, and 0.829, respectively. These CR values were higher than 0.6, we can state that convergent validity was established.

Cronbach Alpha (CA) values are very sensitive to the number of variables in each construct, if CA values above 0.60 and 0.70 are considered fitting in exploratory studies while Composite Reliability (CR) values of 0.70 and 0.90 are considered satisfactory (Hair et al., 2014), so the obtained data in Table 2 shows that the CR value above 0.8 so it is categorized as satisfaction, while the CA value above 0.7, then the questionnaire is declared reliable and consistent. R-Square measurement is part of the inner model assessment. This R-square value shows the relationship between latent variables or unobserved variables.

Variable Correlation in OSE

In this research behavioral engagement refers to student involvement in online learning in the form of active participation of students in synchronous mode. Handelsman, et.al (2005) conclude the factors that influence students to devote their time in the classroom, for instance, skills engagement, emotional engagement; participation engagement, and performance engagement.

The followings are the hypothesis for the relationship between synchronous online training preference and OSE variables:

H1a: synchronous online training preference has a positive relationship with emotions

H1b: synchronous online training preference has a positive relationship with participation

H1c: synchronous online training preference has a positive relationship with performance

H1d: synchronous online training preference has a positive relationship with skills.

Table 3 shows the positive relationship between synchronous online training preference, emotions, participation, performances, as well as skill. Therefore, all the hypotheses, namely H1a, H1b, H1c, and H1d are accepted for this research.

More than a decade ago, Christie et al. (2008) states that emotional interaction between students and their online learning environment is necessary, it is intended to reduce a student's feeling of anonymity and on the contrary increase the feeling of social presence. The results of this study also show that synchronous online training preference has a positive influence on student emotional engagement. This is because there is a sense of presence in learning activities. In addition, for students who prefer online synchronous mode, their peer activity is higher than asynchronous. This is in line with these research findings which showed synchronous online training preference has a positive and significant effect on student participation.

This research findings show that synchronous online training preference has a positive effect on student performance and skills. Malkin et al. (2018) concluded that synchronous discussions in online learning enable the students to be more focused and give a feeling of taking contribution to the learning activities. This kind of feeling can increase student motivation that will impact their performance.

The following is a hypothesis for Online Training Preference on OSE Variables:

H2a: Emotions have a positive relationship with Skills

H2b: Emotions have a positive relationship with Performances

H2c: Emotions have a positive relationship with Participations

H2d: Participations have a positive relationship with Performances

H2e: Participations have a positive relationship with Skills

Table 3. Correlational Analysis between synchronous online training preference and OSE variables

Hypothesis	The Relationship between variables	T-Statistics	Path Coefficient	Result
H1a	Online synchronous training preference -> Emotions	1,599	0.255	Positively influence, not significant
H1b	Online synchronous training preference -> Participations	1,979	0.398	Positively influence, Significant
H1c	Online synchronous training preference -> Performance	1,035	0.164	Positively influence, not significant
H1d	Online synchronous training preference -> Skill	1.831	0.321	Positively influence, not significant

Remark: T values > 1.96 reached * significant

Table 4. Correlational Analysis between variables in OSE

Hypothesis	The Relationship between variables	T-Statistics	Path Coefficient	Results
H2a	Emotions -> Skill	2.668	0.412	Positively influence, Significant
H2b	Emotions -> Performance	0.053	0.026	Positively influences, Not significant
H2c	Emotions -> participations	3182	0364	Positively influence, significant
H2d	participations-> Performance	2183	0243	Positively influences, Significant
H2e	participations -> Skill	2692	0252	Positively influence, Significant

Remark : T values > 1.96 reached * significant

Table 4 shows the positive relationships between OSE variables. We can conclude that all The hypotheses are accepted for this research. Engagement refers to the way students get involved in the classroom or school which incorporates their feeling, think, and behavior (Hospel, Galand, & Janosz, 2016). The results of this study indicate a positive influence between the variables emotions, participation, skills, and performances that construct engagement in synchronous learning. This research is also in line with the research conducted by Deng (2021) which confirmed that Emotional engagement was more influential in predicting learner satisfaction than cognitive engagement and behavioral engagement. Every participant who is actively involved in synchronous learning in the training that has been held has direct implications for the participant's performance in this case the mastery of the presented material. The following are the hypotheses for gender, synchronous online training preference, and OSE Variables:

H3a: Gender has a positive relationship with Emotions

H3b: Gender has a positive relationship with Skills

H3c: Gender has a positive relationship with Participations

H3d: Gender has a positive relationship with Performances

H3e: Gender has a positive relationship with synchronous online training Preference

Table 5. Correlational Analysis between Gender, Synchronous Online Training Preference, and OSE Variables

Hypothesis	The Relationship between variables	T-Statistics	Path Coefficient	Results
H3a	Gender -> Emotions	0808	-0134	Negatively influences, Not significant
H3b	Gender-> Skill	1,316	0.202	Positively influences, Not significant
H3c	Gender-> participations	0147	0039	Positively influence, Not significant
H3d	Gender-> Performance	1.430	0.157	Positively influences, Not significant
H3e	Gender -> Online Synchronous Training Preference	1.319	-0.079	Negatively influence, Not significant

Remark : T values > 1.96 reached * significant

Table 5 shows the positive relationships between gender and OSE variables, namely skills, participation, and performances. Meanwhile, there are two negative values including the relationship between gender and emotions as well as the relationship between gender and synchronous online training preference. Therefore, the hypotheses for H3b, H3c, and H3d are accepted, while, the hypotheses for H3a and H3e are rejected.

According to Baloran et al (2021), there are no statistically significant differences in student engagement in online learning from gender, but according to McKnight-Tutein and Thackaberry (2011), gender determines the success of online learning, one of which is influenced by the level of engagement. Morante et al. (2017) said engagement is a highly individual and complex activity, the level of engagement between men and women differs depending on the type of course presented. In addition, Caspi et al (2008) investigated the level of participation in online classrooms as influenced by gender. Ramírez-Correa et.al (2015) concludes that gender differences influence the perception of external control and perceived ease of use of online learning platform. In addition, gender influences the learning delivery mode, the majority of female students prefer the traditional face-to-face approach while male students prefer the online learning approach (Yu, 2021). Many studies provide different evidence regarding the influence of gender in online learning in terms of learning outcomes, and levels of engagement. Therefore Yu also states that sometimes research findings related to the influence of gender in online learning give inconsistent and even paradoxical results.

CONCLUSIONS

The aim of this research was to explore the relationship between synchronous online training, gender, and online student engagement (OSE). The OSE variables included skills, emotions, participation, and performance. The experiment was carried out using the synchronous learning method using a video web conference platform.

This study revealed the positive relationship between synchronous online training preference with online student engagement, including emotion, participation, performance, and skills. This is because synchronous online learning enables the student to interact between students, teachers, and their learning environment. This study also proves the positive relation between online student engagement (OSE) variables. Engagement is necessary for achieving student success, it will affect students' feelings, think, and behavior. In addition to the variables previously mentioned, the results of this study also show that gender difference has a positive relationship to skills, participation, and performance, whereas it has a negative relationship with synchronous online training preferences and emotions.

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