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The Impact of Students' Motivational Drive and Attitude toward Online Learning on Their Academic Engagement during the Emergency Situation

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ABSTRACT

Background: The advent of emergency remote teaching has significantly transformed the landscape of higher education through the Internet environment. The online learning environment elicits varying student engagement, apathy, and frustration. Nevertheless, digital literacy is not the exclusive factor determining students' academic participation in online learning during an emergency. Students need an extra compelling element.

Purpose: To investigate students' motivational urges and attitudes toward emergency online learning scenarios that impact their academic engagement.

Method: An explanatory research design was implemented in the research method to quantify the intensity and direction of the relationship between variables and elucidate the impact of a single variable on another. Two hundred-eight undergraduate students from a private higher education institution comprised the research's respondents. The structural equation modeling and Hayes' bootstrapping technique were employed to analyze the data further, which was collected through an internet-based poll. In addition, the Confirmatory Factor Analysis (CFA) method was employed to assess the reflective measurement models. This included the internal consistency (Cronbach's alpha, composite reliability), the convergent validity encompassed indicator reliability and average variance extracted (AVE), and the discriminant validity conducted using the cross-loadings approach and the Fornell-Larcker criterion.

Results: The research findings suggest that driven students are more inclined to participate in online learning during an emergency remote teaching scenario by actively controlling their study time and autonomously gaining a deeper comprehension of the academic content. Their active participation in online learning is further evidenced by their motivation derived from attention, relevance, confidence, and satisfaction in emergency remote teaching scenarios. The attitude towards online learning (AOL) fostered by these motivational elements had a negligible impact on the student effort. Furthermore, students residing in rural areas exhibit prevailing motivational elements, such as self-assurance and focus, that motivate them to invest time in creating and understanding educational resources. Concurrently, students residing in metropolitan regions exhibit a prevailing driving force in attention and satisfaction, resulting in a favorable disposition towards active academic participation in online learning by fostering the acquisition of time management abilities.

Conclusion: The results have implications for teachers developing teaching activities to encourage active student academic participation in online learning setting, considering the students' specific needs, backgrounds, characteristics, and abilities.

KEYWORDS

academic engagement, ARCS model of motivational factors, attitudes to online learning, self-regulated learning method

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INTRODUCTION

Emergency situations have altered the learning modes in higher education institutions. When they broke out, higher education institutions were forced to close their campuses and implement online learning programs (Roman & Plopeanu, 2021; Rusli et al., 2020). All governments globally proposed a lock-down program that would initially alleviate the adverse impact and maintain the national educational standard (Churiyah et al., 2020; Zhang et al., 2020). This circumstance demonstrates the learning system's preparedness to adapt to the novel circumstances. Through technology immersion, the evolving learning environment is utilized as an opportunity to enhance the quality of the learning process. The transformational impact of the emergency situations on higher education generates encouraging thoughts and also concerns. Especially focused on the move to online learning and its attendant issues.

Online learning is becoming more prevalent in universities across the globe. The form of learning has evolved dramatically in the Republic of Korea, despite the fact that the vast majority of students have no prior experience with blended learning, online learning, or distance learning (Stewart & Lowenthal, 2022). It will become increasingly difficult for those who are still accustomed to traditional learning methods to cope with the emergency situations (Guo & Chen, 2020). For example, in South Africa, learning has begun to be carried out using technology media such as learning management systems. However, learning is rendered ineffective due to the lack of resources connected to internet facilities (Mhlanga & Moloi, 2020), which many people in rural areas face (Dube, 2020), so they are more likely to experience difficulties in online learning and a negative impact on their academic achievement (Adarkwah, 2021). In Ghana, a similar situation occurred. Online learning in higher education received a positive response from students but was hindered by students' inability to interact with technology (Agormedah et al., 2020). Moreover, at least 62 countries reported a decrease in students' performance in the learning process due to online learning, owing to a lack of computer skills and the assumption that the workload would increase as a result of online learning (Aristovnik et al., 2020). Students' psychological well-being is also negatively affected by the implementation of online learning during emergency situation in China (Wang et al., 2020). Although online learning has become a familiar and necessary adaptation in higher education worldwide, its effectiveness is often hampered by technical problems, inadequate resources, and a demanding learning curve as the elements that can change students' general well-being and academic achievement.

In Indonesian context, Ministry of Education responded to the emergency situation by implementing integrated online learning, also known as 'Merdeka Belajar' program, as soon as the integrated online learning was discovered (Abidah et al., 2020), and impacts the growth in broadband traffic of up to 16%, mainly due to a sharp increase in the use of online learning platforms . The learning objectives that facilitate students' interaction with their learning environment remain unchanged due to the concept of 'Merdeka Belajar', which was implemented in response to an emergency learning situation. The learning process continues to enable students to acquire a new or profound comprehension of a subject that has the potential to alter their thoughts, emotions, or behaviors (Chew & Cerbin, 2021; Wang & Jou, 2023). Moreover, students' capacity to adjust to the learning process and their capacity for critical thinking, communication, collaboration, creativity, and character are still crucial (Thornhill-Miller et al., 2023). Nevertheless, many Indonesian students argue that they are struggling to adapt to online learning. They reveal technophobia and are normally unable to use technology. Some of them have demonstrated negative attitudes towards the online learning process. This may be due to a lack of technological self-confidence, expertise in the handling of technological devices, or the lack of the requisite facilities for the online learning process, including internet connection problem (Rusli et al., 2020; Yundayani et al., 2020). The emergency situation also makes it more frustrating (Wijaya et al., 2020). They experience the ups and downs in the online learning process because motivation plays an important role in efforts related to student persistence, including psychological and personality performance.

The educational landscape in Indonesia is confronted with distinctive obstacles, including the rapid transition from traditional face-to-face classes to online learning, as well as the country's extensive geography and remote regions. Indonesia's educational challenge is significant due to the extensive geography and the presence of numerous remote areas (Luschei & Zubaidah, 2012). Nevertheless, students continue to confront challenges in the Indonesian context due to the abrupt transition from traditional face-to-face classes to online learning and the required rapid adaptation to the new situation (Fatoni et al., 2020; Hanafi et al., 2021). Furthermore, they undergo stress and pressure as a result of this transition. Students worldwide were subjected to unprecedented pressures despite the educational sector's resilience during the pandemic (Karim & Alam, 2021). The location of their online learning also influenced students' attitudes toward online learning. The learning situation, infrastructure, and context of their home learning situation were among the numerous factors influencing their active or non-active engagement in online learning. However, the relationship between students' academic engagement during the emergency and their motivation and attitude toward online learning has not yet been examined.

The current study responds to the need for a better understanding of the role of students' motivation and attitudes toward online learning during the emergency impacting on the students' academic engagement. Also, researchers intend to understand the framework for aligning student motivation to academic engagement in their online learning attitude during the emergency situation, especially considering students' home learning locations (rural versus urban).

RQ: What is the impact of students' motivational drive and attitude toward online learning on their academic engagement during the emergency?

LITERATURE REVIEW

Online Learning

In the online learning environment, there appears to be a lack of regular communication between students and teachers, as well as students and students. In emergency learning situations, adjusting learning modalities and processes and various uncontrollable variables, such as the home learning environment, learning time, and the barriers teachers confront in observing students' engagement, make it more difficult. As a result, it becomes exceedingly challenging. Furthermore, location is also a factor that affects learning goal achievement. The online learning milieu has now fully embraced student-oriented methods that focus on skills and activities that equip students with questioning skill, discussing concepts, offering alternate views and cultivating analytical or original thought (Danesh & Shahnaazari, 2020). It necessitates the development of a positive attitude toward online learning among students. Students' motivation and academic engagement are two of the most important factors in determining their overall academic performance.

Student engagement is facilitated by online learning environments' distinctive challenges and opportunities. Online courses might challenge traditional student engagement developed in face-to-face courses (Cole et al., 2019). It affects student engagement in online courses that may be more complex and ambiguous to comprehend than those in classrooms with in-person instruction. However, student engagement is critical to student learning, especially in online environments where students often feel isolated and disconnected. It refers to the time and effort students spend in academically oriented activities and the efforts institutions commit to using appropriate educational practices (Lu, 2020; Shin & Bolkan, 2021). It also decreases the sense of alienation and increases student academic success in online courses. In addition, engaged students are likely to engage with the course and take responsibility for their learning. It causes that developing students' academic engagement in the current knowledge-seeking environment has become critically important (Chukwuedo et al., 2021).

Student Engagement

Engaged students are more likely to succeed; however, modification of instructional methodologies is necessary to cultivate this engagement. Learning modalities and processes must be modified. They include variety of uncontrollable variables, such as the home learning environment, make online learning during emergency situations more challenging, and a variety of uncontrollable variables, such as the home learning environment, make online learning during emergency situations more challenging (Danesh & Shahnaazari, 2020). Nevertheless, the transition to online learning is not without its barriers. This also affects students' capacity or endeavor to engage in academic learning throughout their entire school experience, which includes the completion of homework, assignments, and credits for graduation (Appleton et al., 2006; Henrie et al., 2015). Academic performance can be adversely affected if students cannot maintain focus or motivation. This underscores the significance of comprehending and facilitating students' engagement in all facets of their learning. This is the point at which students' academic well-being is influenced by their engagement in enhancing their self-direction in learning.

Factors Affecting Online Learning

Determining engagement in online learning and academic performance depends much on student attitudes and motivation; nonetheless, geographical location and technology constraints could influence these interactions. A previous study by Aguilera-Hermida (2020) reported that student attitudes and motivation in online learning played a crucial role in student cognitive engagement and academic success. However, the study found that students' motivation and cognitive engagement decreased due to the emergency online learning situation. Students expressed their positive motivation and attitude to online learning as they were used to get involved in the online environment (Baranova et al., 2021). Besides, student attitudes towards technology-based self-learning contributed to student acceptance of technology and technical self-efficiency (Pan, 2020). Experience in online activities encouraged students to participate in online learning actively. They adapted to the online learning process quickly, even though they had these new learning modes.

With regard to students' online learning location, Vanan and Subramani (2015) contended that there were no major differences in student attitudes towards their technology acceptance based on students' geographical location in rural or urban areas. Furthermore, Chung and Mathew (2020) found that student satisfaction was a key factor in their motive for engaging in online learning even though their online

learning location did not have a significant relationship with online learning satisfaction. However, Nistor (2013) claimed that students' online learning location significantly impacted their positive attitude toward online learning. Students appear to be habituated to adjusting to technological advancements due to their status as digital natives; this familiarity influences their level of motivation to participate in the online learning process. The drive for students to participate in online learning is, nevertheless, significantly impacted by technological constraints. Meanwhile, Ferrer et al. (2020) revealed that students' attitudes to online learning mediated the relationship between their motivation and their engagement in the online learning environment.

METHOD

Research Design

This study employed an explanatory research design to measure the strength and direction of the relationship between variables while also attempting to explain the effect of a single variable on another (Edmonds & Kennedy, 2016). Furthermore, this research design enables the researchers to explore the topic in various depths, depending on the research question. Through positive encouragement for the online learning environment's progression, higher education students have more rights to engage actively in the academic field during the online learning, encouraged by their attitudes. Figure 1 depicts our study model, which argues for the reasoning of the research questions investigated.

Participants

The participants in this study were two hundred and eight students. Academically, they represented a range of educational backgrounds in higher education, including first-year students, sophomores, and juniors. They were recruited for this study for a variety of reasons, including (1) their location during online learning in the emergency, (2) the challenges they encountered while learning online during an emergency situation, and (3) their willingness to participate voluntarily in this study. The location of students' learning is a factor that influences the attainment of learning objectives. The current study was carried out in Indonesian private higher education institution settings. The institution was chosen because of a phenomenon relevant to the current study, namely the impact of online learning in the emergency on students' academic engagement since the institution shifted the learning mode.

Figure 1

Research Model

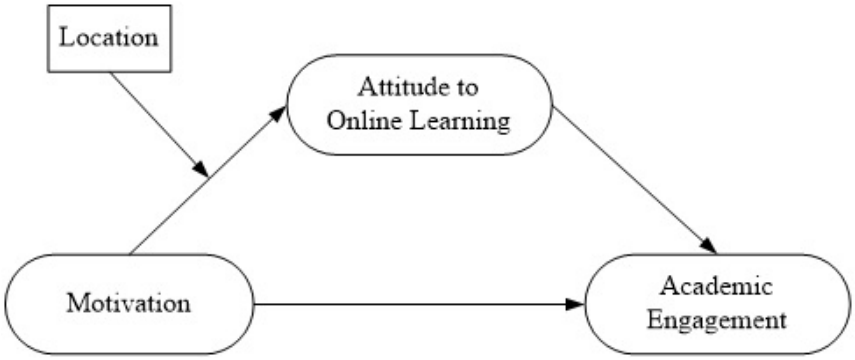


Table 1

Demographic Characteristics

		Number (persons)	%
Gender	Male	65	31.25
	Female	143	68.75
Age	Below 19 years old	9	4.33
	19 years old and above	199	95.67
The use of learning devices	Computer PC	7	3.3
	Laptops	95	45.7
	Smartphone	106	50.9
Students' online learning location	Rural areas	116	55.7
	Urban areas	92	44.23

Table 1 summarizes the demographic characteristics of the research participants. Responses to the online survey resulted in 208 functional responses to the research model in Figure 1 as data preparation.

Instruments and Data Collection

The questionnaire was designed to collect adequate data through an online survey using a positive statement. It was developed based on the foundational theories of students' motivation (Keller, 2010), academic engagement (Appleton et al., 2006; Cohen & Henry, 2019; Fredricks & McColskey, 2012; Guay, 2022; Reeve & Tseng, 2011; Zimmerman, 2013), and attitude to online learning (Ferrer et al., 2020; Loyd & Gressard, 1984). Each dimension consisted of four to ten statements determined by the research objective. The dimension is reflected in the following statements: I strive to establish connections between assignments and time spent on tasks; I am genuinely inquisitive about the material we are studying; I provide recommendations for improving online classes; and I enjoy the online learning process.

A back translation process was implemented to guarantee the accuracy and cultural relevance of the research questionnaire. This process entailed comparing and reviewing to identify discrepancies, inconsistencies, or misunderstandings. This approach improved the questionnaire's reliability and validity by reducing translation-related biases and ensuring respondents comprehended the questions as intended.

The scale of measurement was the interval. Students were free to determine their number for each scale statement in the range of more than 0 and not more than 4. The large-scale survey was distributed to students using a questionnaire through the Google form to undergraduate students with active college enrollment. Students filled out three sets of instruments, namely: student motivation scale, academic engagement scale, and attitude to online learning scale.

Student Motivation Scale

Student motivation was determined using the well-established scale of Attention, Relevance, Confidence, and Satisfaction (ARCS) developed by Keller (2010). Students should pay attention to their good attitudes by asking questions, engaging, and generating mental challenges. It can be seen as a mixture of behavioral and cognitive processes. The next aspect is relevance is coming next. It is known as something that has sparked students' attention when they see the value of something they have for their needs. On the other hand, confidence is a feeling of belief that students are willing to achieve learning goals by encouraging them to believe and feel that they can excel and monitor their success. Also, satisfaction is like a firm trust that relates to a good feeling that students get when they obtain what they want or do what they want to do by enhancing achievement with internal or external rewards.

Academic Engagement Scale

The Academic Engagement Scale (AES) refers to the ability or effort to participate in academic learning during a student's entire school experience. It includes time on assignment and credits earned for graduation and homework completion (Appleton et al., 2006; Henrie et al., 2015). The items are adapted to reflect the online learning environment based on effort regulation, time management, and elaboration. In this study, we tested the effort regulation based on the Self-Regulated Learning (SRL) method suggested by Zimmerman (2013). It was described as the process experienced by students to properly track their behavior to achieve their learning objectives (Zimmerman & Kitsantas, 2014). In other words, Liew et al. (2011) argued that effort regulation could be described as the perceived investment of students (in time, work, and resources) committed to a mission or operation, as well as the willingness of students to make efforts and to continue to do so, even though it is not pleasant or convenient.

Time management could be seen as a behavioral regulation that involves students' willingness to conduct SRL practices. It is a significant self-regulation mechanism in which students actively control when and for how long they participate in activities considered necessary to achieve their academic goals (Wolters & Brady, 2020). Besides, time management was seen as a multidimensional process that involves setting and prioritizing priorities, short-and long-term planning, calculating time needs, tracking how time is spent, and purposely structuring or allocating time is spent (van Eerde, 2015). Elaboration is students' cognitive behavior related to adding more information to the existing body of knowledge to create a more complex comprehension, changing whole. It can be defined as an extension of a definition that involves developing an idea by adding details to extend the original basic idea. Wolters et al. (2005) argued that, for example, students are attempting to summarize the content in their terms, to connect new concepts to prior knowledge, and to incorporate information from various sources. Also, an in-depth approach to learning is closely linked to students undertaking growth techniques that can take place through self-study, discussion, note-taking, or responding to questions.

Attitude to Online Learning Scale

The Attitude to Online Learning Scale (AOLS) was constructed by collecting statements comprising attitudinal components that cover emotional, cognitive, and behavioral aspects (Ferrer et al., 2020; Loyd & Gressard, 1984). The emotional aspect represents technical anxiety, concern, or apprehension when using technology and digital skills learning. It could be seen as a student's sense of their own

ability to use online technologies to boost learning. Besides, the cognitive component relates to technical self-confidence and the capacity to perform digital tasks. It can be described as students' beliefs and opinions about online learning technology. Moreover, the behavioral factor applies to technical patterns, which are like dealing with technology. It explains the intentions of students concerning the use of various elements of the accessible online learning environment.

Data Analysis Techniques

The data analysis was carried out in two phases. First, data analysis used Confirmatory Factor Analysis (CFA) method to evaluate the reflective measurement models, which included the internal consistency (Cronbach's alpha, composite reliability), the convergent validity that covered indicator reliability and average variance extracted (AVE), and discriminant validity by the cross-loadings approach and the Fornell-Larcker criterion (Hair Jr et al., 2016). The CFA analysis performed two structural models. The model is differentiated according to the first or second-order factors of academic engagement. The variables analyzed include academic engagement, AOL, and motivation variables. In the analysis, the two models' motivation variables were analyzed based on four reflective factors, namely attention, relevance, confidence, and satisfaction.

The analysis for the second stage was evaluating the structural model of the second-order factor of variables. Hair Jr et al. (2016) stated that the analysis of a model based on the second-order variable was better than the first in explaining the relationship between research variables because it operated at a higher abstraction level. We tested the path diagram using structural equation modeling (SEM) through two procedures in the second stage. The procedures of the structural model evaluation were Collinearity assessment and significance of path coefficients. The conditions were of variable importance in the projection (VIP) on Collinearity evaluation, which is more than 0.20 and less than 5. Meanwhile, for the evaluation of size and significance of path coefficients, we used the SmartPLS software to analyze the data and the bootstrapping approach to test the significance of AOL mediation and the moderated mediation effect by study location (urban and rural areas) during the emergency situation.

RESULTS

Measurement Model

We tested the research model's measurement component to assess the fitness of the model and the psychometric properties of the sample designs, including reliability and factorial validity. The CFA model tested covered (1) the first-order academic engagement model (AE) in which all elements were loaded into a single latent and the first-order Attitude to Online Learning (AOL) component; (2) the second-order three-factor academic engagement model included in each effort regulation, time management and elaboration, and of the first-order AOL factor.

The first model fit analysis findings suggested that composite reliability was more than 0.7 (0.929 for academic engage-

Table 2

Descriptive Statistics, Cronbach's Alpha, Composite Reliability, and AVE

Independent variable	Mean (Standart Deviation)						Cronbach-α	Composite Reliability	AVE
	1	2	3	4	5	6			
Attention	2.867 (.784)	2.934 (.762)	2.991 (.711)	3.083 (.564)	3.283 (.575)		.829	.878	.590
Relevance	3.193 (.639)	3.074 (.660)	3.106 (.614)	3.169 (.618)			.909	.936	.785
Confidence	2.614 (.921)	2.491 (.869)	2.870 (.758)	2.670 (.802)	2.520 (.856)		.877	.909	.667
Satisfaction	2.999 (.729)	3.395 (.579)	3.047 (.703)				.710	.838	.634
Effort Regulation	3.150 (.619)	3.189 (.632)	3.129 (.608)	3.034 (.539)			.869	.916	.718
Time Management	3.307 (.586)	3.347 (.571)					.654	.910	.741
Elaboration	3.181 (.576)	3.044 (.634)	3.216 (.586)	3.060 (.610)			.870	.850	.720
AOL	3.328 (.537)	3.475 (.527)	3.253 (.602)	3.451 (.524)	3.437 (.541)	3.616 (.464)	.890	.911	.684

Note. AVE - Average Variance Extracted; M - Mean; SD - Standart Deviation. Each variable has several indicators, the number for the mean (M) of an indicator is not in parentheses, the number for the standard deviation (SD) of an indicator is in parentheses.

ment, 0.878 for attention, 0.916 for AOL, 0.909 for confidence, 0.936 for relevance, and 0.838 for satisfaction). All Cronbach's alpha values were more than 0.7 (0.884 for academic engagement, 0.829 for attention, 0.890 for AOL, 0.877 for confidence, 0.909 for relevance, and 0.710 for satisfaction). Further, all loading factor values were more than or equal to 0.7. All AVE values ranged from 0.591 to 0.813 exceeding the recommended level of 0.5. Besides, all factor loading values of the construct were more than the cross-loadings values. In addition to the square root value of AVE for the attention construct of 0.769, less than 0.848, the value of the relationship between attention and academic engagement and all square root AVE constructs' values were more than the value of the relationship between the other constructs. Because there was a value of the square root AVE of one construct not more than its relationship value with other constructs, the Fornell-Larcker criterion-based approach for discriminant validity was not established. However, the measurement theory supported our research for analysis using a higher-order construct. So, the second model was evaluated.

The measurement model's study results are shown in Table 2 records the means, standard deviations, Cronbach's alpha, composite reliability, and AVE. The second model's first evaluation met two outers' loading from effort regulation (the value for one indicator was 0.559) and elaboration (the value was 0.557) was less than 0.7. Then, we removed both indicators. The impact of indicator deletion on internal consistency reliability increased the threshold. Based on the results of data analysis for the second reflective measurement models after the first evaluation, it was found that composite reliability was more than 0.7 (0.910 for effort regulation, 0.851 for time management, and 0.911 for elaboration). Cronbach's alpha value of constructs was acceptable (0.869 for effort regulation, 0.654 for time management, and 0.870 for elaboration). Moreover, all loading factor values were more than or equal to 0.7. All AVE values ranging from 0.591 to 0.813 exceeded the recommended level of 0.5. Besides, all factor loading values of the construct were more than the cross-loadings values.

AVE's square root value for the attention construct of 0.768, less than 0.832, is the value of the relationship between attention and effort regulation. AVE's square root value for the attention construct of 0.768, less than 0.824, is the value of the relationship between attention and elaboration. AVE's square root value for the effort regulation construct of 0.847, less than 0.886, is the value of the relationship between effort regulation and elaboration. Besides, all square root AVE constructs' values are more than the value of the other constructs' relationship. Meanwhile, for the analysis results for Collinearity evaluation, all VIP values are consistent with the main criterion for evaluating structural models in Hair et al. (2016). Each value must be more than 0.20 and less than 5, respectively. Because of the direction of research in the context of predictive power on achieving better fit models, the fit model's problem is part of the recommendations for relevant research.

Structural Model

The data analyzed in the structural model indicates the impact of motivation using attention, relevance, confidence, and satisfaction with academic engagement that focuses on effort regulation, time management, and elaboration. The data analysis results are presented in Table 2, revealing that the effects of attention, confidence, relevance, and satisfaction on AOL are significant at $p<0.01$. Next, Table 2 indicates that the effect of AOL on each time management and elaboration is significant at least at $p<0.01$, except for the effort regulation. At a minimum, the study's two outcomes provide an initial overview of the significance of motivational impact analysis on academic engagement factors when the AOL variable is the mediator.

Mediation Results

At the next stage, the researcher examined each motivation factor's effects on each academic engagement factor through the online learning attitude factor's first order. The results data analysis is shown in Table 3.

Based on the results of the data analysis, the effect of attention was significant on the factor of time management ($\beta_{indirect}$ = 0.204, $p<0.001$), the factor of elaboration ($\beta_{indirect}$ = 0.075, $p<0.01$) of AOL-mediated academic engagement. The results of the data analysis also show that the effect of confidence was significant on the factor of time management ($\beta_{indirect}$ = 0.098, $p<0.01$), the factor of elaboration ($\beta_{indirect}$ = 0.036, $p<0.05$) of AOL-mediated academic engagement. Next is the effect of relevance, which shows a significant effect on the factor of time management ($\beta_{indirect}$ =-0.113, $p<0.05$), the factor of elaboration ($\beta_{indirect}$ =0.041, $p<0.05$) of AOL-mediated academic engagement, but not for the factor of effort regulation (βindirect = 0.015, p = 0.314). The effect of satisfaction was also found to be significant on the factor of time management ($\beta_{indirect}$ = 0.134, $p<0.01$) and the factor of elaboration ($\beta_{indirect}$ = 0.049, $p<0.05$) of mediated AOL academic engagement, but not for the factor of effort regulation ($\beta_{indirect}$=0.017, p=0.307).

The research findings show that all motivational factors significantly affect time management and elaboration factors of the academic engagement construct mediated by AOL. Indeed, AOL is a core mediator in the relationship between motivation and academic engagement.

Table 3

Decomposition of the Effects of the Independent Variables in the Analyzed Mediation Model

Independent Variable	Dependent Variable											
	Attitude to Online Learning			Effort Regulation			Time Management			Elaboration		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
Attention	.441***	-	.441***	.443***	.026 (-.020, .073)	.470***	.023	.204*** (.111, .297)	.227*	.317***	.075** (.022, .127)	.392***
Confidence	-.213***	-	-.213***	.007	-.013 (-.036, .011)	-.060	.047	-.098** (-.158, -.038)	-.052	-.006	-.036* (-.067, -.005)	-.042
Relevance	.244**	-	.244**	.358***	.015 (-.014, .043)	.373***	.180*	.113* (.027, .198)	.293**	.454***	.041* (.004, .078)	.495***
Satisfaction	.291***	-	.291***	.118	.017 (-.016, .051)	.135*	.193*	.134** (.052, .217)	.327*	.092	.049* (.010, .088)	.142**
AOL	-	-	-	.060	-	.060	.462***	-	.462***	.169**	-	.169**
R^2	.560			.773			.600			.821		

Note. The effect of background variables is controlled for prior to calculating estimates. Values in the table are standardised regression coefficients. Indirect and total effects were calculated via bootstrapping procedure (with bias-corrected standard errors) using 5000 random draws. n=208; *p<.05; **p<.01; ***p<.001.

Moderated Mediation Results

The dominant student residence location determines the moderating effect on the relationship between motivation and AOL-mediated academic engagement as their place of study during online learning. The researchers performed a data review of the major differences between rural and urban sub-samples regarding the relationship between motivational factors and academic engagement. In the final stage, the researchers employed an analysis of how the mediation influence of AOL varied between students' home learning located in urban and rural areas. The student origin location was more dominant in identifying where they would take online learning with their lecturers and was a categorical or nominal variable. In contrast, a multi-group moderation study was carried out.

Initial analysis of measurement models on student subsample data from rural areas was to identify indicators whose outer loading value was less than 0.7 and remove it. After all outer loading values were more than 0.7, the measurement model analysis result showed that composite reliability was more than 0.7 (0.923 for AOL, 0.853 for attention, 0.925 for relevance, 0.910 for confidence, 0.833 for satisfaction, 0.901 for effort regulation, 0.820 for time management, and 0.887 for elaboration), and all Cronbach's alpha value construct were acceptable (0.873 for AOL, 0.748 for attention, 0.892 for relevance, 0.879 for confidence, 0.599 for satisfaction, 0.853 for effort regulation, 0.570 for time management, and 0.831 for elaboration). All AVE values ranging from 0.662 to 0.799 exceeded the recommended level of 0.5. All factor loading values of the construct are more than the cross-loadings values. In addition to the AVE's square root value for the elaboration factor of 0.814, less than 0.826, the value of the relationship between elaboration and effort regulation and all square root AVE constructs' values were more than the value of the relationship between the other constructs. Meanwhile, the analysis results for Collinearity evaluation; all VIP values are more than 0.20 and less than 5.

The data analysis of the urban area student subsample showed that composite reliability was more than 0.7 (0.927 for AOL, 0.892 for attention, 0.947 for relevance, 0.908 for confidence, 0.862 for satisfaction, 0.921 for effort regulation, 0.882 for time management, and 0.938 for elaboration), and all Cronbach's alpha value construct were acceptable (0.903 for AOL, 0.840 for attention, 0.925 for relevance, 0.874 for confidence, 0.760 for satisfaction, 0.886 for effort regulation, 0.734 for time management, and 0.901 for elaboration). All AVE values ranging from 0.664 to 0.834 exceeded the recommended level of 0.5. All factor loading values of the construct are more than the cross-loadings values. In addition to the AVE's square root value for the effort regulation factor of 0.864, less than 0.927, the value of the relationship between effort regulation and elaboration. AVE's square root value for the elaboration factor of 0.913, less than 0.927, the value of the relationship between elaboration and effort regulation. Meanwhile, the analysis results for Collinearity evaluation; all VIP values are more than 0.20 and less than 5.

Table 4

Moderated Mediation Results for Effort Regulation, Time Management, and Elaboration across Students from Rural and Urban Area

Independent Variable	Multigroup moderator	Dependent Variable											
		Attitude to Online Learning			Effort Regulation			Time Management			Elaboration		
		Direct	Indirect	Total	Direct	Indirect (95% CI)	Total	Direct	Indirect (95% CI)	Total	Direct	Indirect (95% CI)	Total
Attention	Rural	.372**	-	.372**	.358***	.030 (-.018, .098)	.388***	.119	.121 (.017, .264)	.240	.210*	.071* (.013, .151)	.282*
	Urban	.306*	-	.306*	.336**	.019 (-.037, .072)	.356***	.145	.146* (-.001, .281)	.291	.184	.071 (-.004, .167)	.254*
Confidence	Rural	-.381***	-	-.381***	.094	-.031 (-.076, .025)	.063	-.018	-.124* (-.223, -.037)	-.106	.123	-.073* (-.142, -.021)	.049
	Urban	-.193*	-	-.193*	-.078	-.012 (-.057, .019)	-.090	.123	-.092 (-.207, -.011)	.031	-.031	-.045 (-.122, .001)	-.076
Relevance	Rural	.287**	-	.287**	.356***	.023 (-.018, .071)	.379***	.274*	.093 (.014, .216)	.367**	.506***	.055 (.010, .119)	.561***
	Urban	.283*	-	.283*	.517***	.018 (-.025, .089)	.535***	-.014	.134 (-.011, .339)	.121	.420***	.065 (-.001 .187)	.486***
Satisfaction	Rural	.282*	-	.282*	.131	.023 (-.020, .075)	.154	.174	.092 (.005, .212)	.266*	.039	.054 (.004, .121)	.093
	Urban	.405***	-	.405***	.144	.026 (-.038, .114)	.170*	.215	.193* (.066, .381)	.408***	.189*	.094 (.012, .225)	.282***
AOL	Rural	-	-	-	.080	-	.080	.326**	-	.326**	.192**	-	.192**
	Urban	-	-	-	.063	-	.063	.476***	-	.476***	.231*	-	.231*
R^2	Rural	.438			.696			.532			.743		
	Urban	.591			.815			.672			.778		

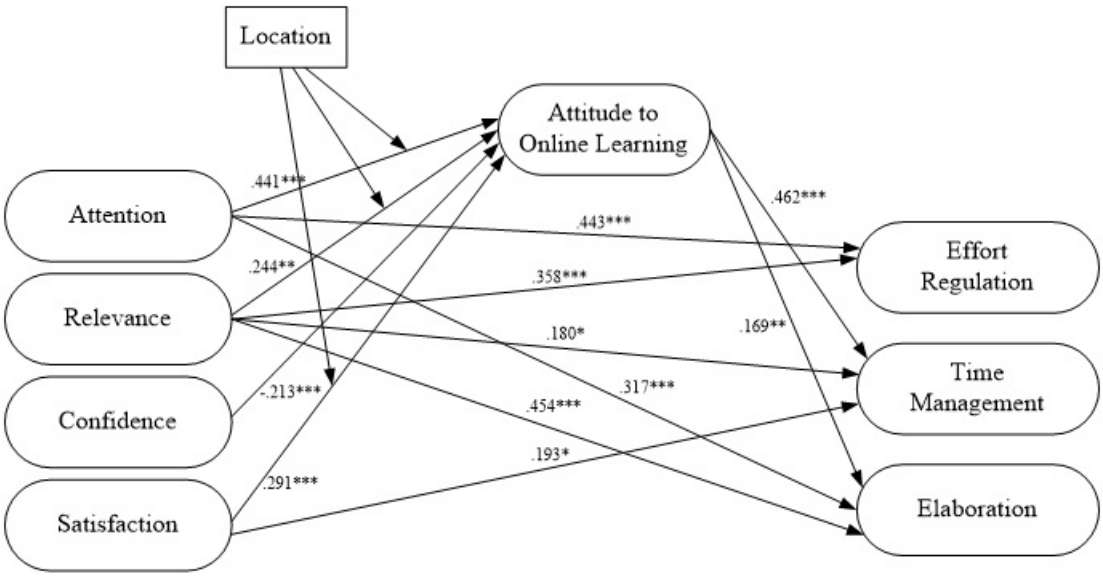
Note. Conditional indirect effects were calculated via bootstrapping procedure (with bias-corrected standard errors) using 5000 random draws. $n_{Rural\ area}$=116; $n_{Urban\ area}$=92; *p<.05; **p<.01; ***p<.001.

Table 4 shows a significant difference between sub-sample based on students' home learning location in urban and rural area categories in the relationship of the factors, (a) relevance to time management; and (b) attention, satisfaction to elaboration. Therefore, there was a different finding between the sub-sample in rural and urban areas. Results related to the relationship between motivational factors on relevance, confidence, and satisfaction with academic engagement were satisfied. Each path had a different significant effect on the two sub-samples based on multi-group moderation.

Overall, the results were focused on factors; first is the effect of motivational factors in the form of attention and relevance to effort regulation; also, relevance to elaboration. Meanwhile, the rest components of motivational factor are not significant. The second is the significant effect of the whole motivational factors on AOL. The third is the differences between rural and urban sub-samples regarding the relationship between motivational factors and academic engagement. Student learning locations could moderate the mediation of attention, relevance, and satisfaction.

Figure 2

Significant Direct Paths in the Research Model



Moreover, the researchers analyzed the conditions of the AOL-mediated indirect influence of the motivation factor on all students' academic engagement factor between urban and rural sub-samples to confirm the effect of moderate mediation. Table 4 displays these indirect effects. As shown in Table 4, the factor of attention to time management (βindirect=0.146, p<0.05) and the factor of satisfaction to time management (βindirect=0.193, p<0.05) were significant for students whose home learning is located in the urban area. Meanwhile, the significance for students who learn at home in rural areas was attributed by the confidence factor to time management (βindirect=-0.124, p<0.05), the factor of confidence to elaboration (βindirect=-0.073, p<0.05), and the factor of attention to elaboration (βindirect=0.071, p<0.05). The other study results revealed that there was no mediating effect that was moderated by relevance and satisfaction to effort regulation and elaboration. The result provides partial support for academic engagement affected by student motivation, with motivation moderated by location factors and then mediated by students' attitudes toward online learning. Figure 2 provides a visual model of all significant direct paths as derived from this research.

DISCUSSION

Academic Engagement

This study's findings showed that the research participants tend to be affectionate enough to actively engage academically in online learning during emergencies. They are devoted to managing study time. It is consistent with the research outcome of Ferrer et al. (2020). Wolters and Brady (2020) believe that time management is a significant self-regulation mechanism in which students actively manage when and how long they engage in necessary activities to achieve their academic goals. Effective time management is reflected in the student's basic strategic habits, which include creating a plan, adhering to a learning schedule, making to-do lists through setting personal deadlines and reducing unnecessary time or distractions. Besides, Strunk et al. (2013) concluded that successful time management is embodied in a person's ability to use their time efficiently and in a way that both advances their achievement of valued goals and avoids distractions, procrastination, or other misappropriation of time. Also, higher education students are seeing a rise in their potential to be autonomous learners. They are supposed to be independent learners and usually experience increased autonomy and accountability so they can participate in more learning experiences outside the classroom, on their own time, and under their guidance (Banahan & Mullendore, 2020).

Nevertheless, emergency online learning situations are distinct from face-to-face learning, not due to differences in cognitive processes or the strategies essential for learning but rather due to contextual differences in constraints, affordances, and objectives. The broader issue of allocating time for learning is present (Del Valle & Duffy, 2009). Even with the fixed class time and the campus as a reminder, numerous students require assistance in managing their time for academic work. The necessity of managing the flexibility of online learning is exacerbated by the absence of a fixed class time or other signals to indicate that it is "time to learn." This is why establishing a connection between the learning objective and students' life goals is crucial for developing self-directed learning.

Research findings also revealed that the research participants appear to be sufficiently affectionate to engage effectively in online learning in an emergency by demonstrating their commitment to a deeper understanding of learning

material independently. Motivated students are responsible for learning by connecting new ideas to prior knowledge in this setting. Also, they attempt to understand the learning material by linking new concepts to prior knowledge, constructing the meaning of the information to be learned, and critically evaluating knowledge. Emergency online learning situations were unintentional, convincing student-centered learning environments by promoting meaningful learning. However, Pires et al. (2020) argued that student-centered learning environments enable students to use elaboration strategies by attempting to summarize the content in their terms, connecting new concepts to prior knowledge, and incorporating information from various sources. The effect of elaboration on attitude strength depends largely on people's perceptions of their elaboration and their beliefs that more elaboration produces better judgments that can be held with greater certainty (Barden & Tormala, 2014). This research finding asserts that student-centered learning environments are anticipated to encourage students to develop a more profound and tangible comprehension of new concepts by integrating them into their existing knowledge and utilizing them in problem-solving projects and case discussions. These students' acts in online learning activities are needed. Their commitment to participate academically supports their comprehension of learning materials, and the aim of learning will be reached by the end of the day. Motivated students can manage the situation even if it is difficult in this emergency.

Student Motivation

Research results showed that the respondents' decent attitude to be actively academically engaged in the online learning process emerges because they are driven by attention, relevance, confidence, and satisfaction (ARCS) during the emergency situation. Li and Keller (2018) found that the ARCS model encourages academic achievement and motivation and enables students to show good attitudes in the learning process. Motivation is also a pivotal factor in the student's devotion to related activities, the continuation of related activities, desire and learning through feeling linked to related activities (Goksu & Bolat, 2020). Nevertheless, the research findings contend that the online learning environment attracts and piques students' interest. The learning materials are also relevant to their interests, improving their academic engagement and sense of connection in the online learning environment. Besides, students' motivation is at an appropriate level of confidence. They can resolve well-established fears that obstruct their learning of lessons or achievements and do not neglect crucial details in their online learning activities. The satisfaction factor emerges since students are pleased with the online learning experience and the effects of a consistent willingness to learn by knowing natural outcomes, unforeseen rewards or good effects.

However, attitudes to online learning (AOL) driven by these ARCS motivational factors were not significant in shaping student effort regulation. Students' process of controlling their actions adequately to achieve their learning target during an emergency was not affected by their AOL based on motivation factors in attention, relevance, confidence, and satisfaction. These results seem to be impressive. Students notice that they should accomplish their personal aim following the learning objective, even in the case of an emergency. Online or offline learning appears not to affect students' devotion to learning. However, Kemp (2020) found that the motives for face-to-face and online learning were very close to the effort students felt they had made in their classrooms. In both cases, students demonstrated that their efforts depended largely on their expectations and the degree to which they regarded classes as stimulating, rather than what anyone else thought of their contribution. This phenomenon is promising because it suggests that most students partake in these classes because of their inherent self-motivation, rather than merely meeting others' expectations. Moreover, Valantinaitė and Sederevičiūtė-Pačiauskienė (2020) found that AOL students were affected by the favorable factors of using the online learning environment defined in five categories: content resources/base; instructor personality; student personality, knowledge presentation, and institutional accessibility. Besides, Ozdemir (2018) stated that the school's contribution positively affects the students' academic, emotional, and behavioral development. It seems odd as the participants found out that using the online learning environment was their most essential, led by uploading material to the online learning environment and its convenience to use. Still, this research indicates that students' attitudes continue to suggest that motivation expedites the resolution of external distractions. Motivation has a role to play in student actions as self-regulating learners. It also refers to the perceived importance of an activity that influences behavioral intentions and refers to the learner's inner motivation to learn, including the pleasure inherent in the activity and the desire to achieve the goal (Aguilera-Hermida, 2020). Highly self-regulated learners demonstrate successful, positive motivation and self-efficacy in their learning processes by selecting learning content, defining learning goals, and organizing and controlling their learning processes (Aguilera-Hermida, 2020; Kemp et al., 2019).

Attitude to Online Learning

The researcher also found that students whose online learning locations are located in rural areas have dominant motivational factors, including attention and confidence, which lead them to devote themselves to elaborating and managing time to understand deeper learning content. Studies noticed that infrastructure facilities in Indonesia are backing up this finding. Indonesia's big educational challenge

is the vast geography and many remote areas (Luschei & Zubaidah, 2012). The majority of Indonesia's rural areas experience low bandwidth Internet connectivity, lack of locally developed electronic content, restricted access to computers or most are computer-illiterate, and frequent power blackouts are also a major obstacle. Only 48.3 per cent of Indonesia's rural areas have been connected to the Internet, while the other still experiencing difficulties accessing the Internet (Budiyanto et al., 2019). These conditions shifted students' attention to elaboration, reflecting their commitment to show their good attitudes by asking questions, engaging, and generating cognitive issues. Rural students demonstrated a fusion of behavioural and cognitive processes that clarified their passion for incorporating more information into existing knowledge to create a deeper understanding. Rural students also tend to attempt to summarize the material in their words, relate new concepts to prior knowledge, and integrate information from various sources that can be accomplished through self-study, discussion, taking notes, or answering questions.

Furthermore, rural students have shown confidence, which leads them to devote themselves to creating and managing time to understand deeper learning material. Rural students reckon that they can achieve learning goals by inspiring them to believe and feel that they can succeed and track their progress, even though their home learning location is rural. Rural students can cope with the minimum infrastructure by struggling to improve their understanding of achieving the learning target during the emergency online learning situation through peer-discussion and self-learning. Rural students were also confident in controlling their learning time. Since they did not have to go to campus, rural students can save and use their time more flexibly and change their schedule depending on the learning goal that needs to be accomplished. It also includes setting and prioritizing priorities, short-and long-term planning, measuring time needs, monitoring how time is spent, and intentionally structuring or allocating time. Nevertheless, in addition to motivation, self-regulation, situational factors, and interaction also play a role in online learning, particularly in emergency online learning (Lei & Lin, 2022). It also encompasses situational and emotional challenges, necessitating meticulous instructional design and institutional support. In the meantime, students whose online learning locations are located in urban areas have a dominant motivating factor in the attention and satisfaction components, resulting in a good attitude towards active academic engagement in the online learning process through the management of learning time. Urban students appeared to be able to embrace emergency online learning situations and effective resources for online learning. Moreover, urban students showed their curiosities and interests because they obtained the proper stimulus from the online process environment that concerns handling and focusing their attention. Churiyah et al. (2020) found that student domicile often affects the opportunity to access technology. Students living in urban areas will be more responsive to technology. Still, it will definitely be challenging to carry out online media-based learning, unlike students living in rural areas. It explained the importance of the Internet in the online learning environment as it enables students to interact more easily and take advantage of more versatile learning processes. They tended to figure out how to make the experience of the emergency online learning situation more engaging and interesting. They also demonstrated a continuous willingness to learn and satisfaction with the learning experience's process or outcomes.

This research proposes that the factors of attention, relevance, confidence, and satisfaction that are associated with the online learning location contribute to students' academic engagement during an emergency online learning situation, in contrast to some previous studies (Al-Hashmi, 2021; Bhowmik & Dipak Bhattacharya, 2021) that suggested that students' motivation in remote online learning is influenced by a variety of academic factors, including the absence of group work and teachers, as well as non-academic factors, such as internet connectivity and family obligations. The findings of this study also corroborated the Nistor (2013) study that the location effect significantly affected students' positive attitudes towards online learning. Nevertheless, this was inconsistent with the findings of Chung and Mathew (2020), who asserted that students' intention to continue with online learning is significantly influenced by their contentment with the online learning experience. The online learning is reasonably manageable for students in urban areas as urban students' access to connectivity is much greater than in rural areas (Beiwinkler , 2020). Urban students' satisfaction resulted from the online learning process supported by their online learning areas. Urban students felt a supportive learning atmosphere through peer-to-teacher contact with students. Urban students also felt that their views had been heard and respected, and mastering challenges that strengthened their sense of competence.

Limitations and Recommendations

Collecting data in a cross-sectional study is perceived to be one of the drawbacks of the study so that other methods, such as time series, cohort and longitudinal, are required. On the other hand, with this data collection technique, there are statistical signs that construct measures are relatively considered to have the same meaning by respondents, such as confidence and relevance variables.

On the instrument scale, researchers cannot make longer sentences to clarify to students the meaning of each component, such that variations in meaning are more apparent. It is also impossible for the researcher to add a direct and more in-depth description of each component before the students make an evaluation. Such a constraint is one of the limited data collection factors that need to be performed online due to government regulations due to large-scale social

restrictions on Indonesia's emergency conditions. This research persists in providing gains because new knowledge exists about how the motivating factors of students who online study located in rural or urban areas to their attitudes in the online learning process during the emergency situation and their academic engagement. The relevance of the statistical analysis findings in this study has to do with student knowledge aspects depending on how the information acquired is perceived.

In the research discussion, the reflection findings are also related to the knowledge students have, so there are implications for student motivation and effort regulation. However, the knowledge factor has not been included in the analysis so that the study is not carried out. This aspect needs to be considered for further concern on the conceptual framework in this study.

Motivation factors and academic engagement in this research are an assessment that focuses only on students and has not been seen from the point of view of social-environmental factors that affect them. Researchers also argue that the social environment is a part that influences each individual's growth, even in the online learning process (Romero et al., 2020; Wang et al., 2020), so that this aspect becomes an opportunity for further research development. The study also did not examine the characteristics of students who study online in urban or rural areas because researchers did not find evidence that could indicate disparities in student character between those learning online from urban areas or rural areas. The student-characteristic theme based on online learning location will be a recommendation, particularly in our next research.

CONCLUSION

In order to deal with emergency situations, the teacher must be prepared to create a teaching scenario that can motivate students within the context of higher education. Students' academic engagement should be considered during an emergency resulting from a shift to online learning. Comprehending the students' backgrounds, needs, and characteristics is essential for the teacher to integrate them into the learning process. Motivated students would benefit from being actively involved in online learning to be devoted to managing their study time and developing a more profound comprehension of the material. The students' positive attitude towards being actively engaged in the online learning process results from their attention, sense of relevance to the online learning process, confidence, and satisfaction with the online learning process. While these motivational variables did not substantially impact the regulation of student effort, they did engender attitudes.

Students' success is substantially determined by their education access, even in emergency situations. Compared to students in rural and urban areas with limited access to information and communication technology, urban students have a substantially different educational experience. Nevertheless, the motivational factor of urban and rural students' access to a computer and the internet has been demonstrated. Attention and confidence were the primary motivational factors for students enrolled in online learning programs in rural areas. Consequently, they dedicated themselves to organizing and developing their learning time to understand the course material better. In the meantime, students enrolled in online learning programs in urban areas possess a prominent motivating factor in the attention and satisfaction components, which leads to a favourable attitude toward active academic engagement in the online learning process through effective learning time management. The locations of online learning access revealed the motivational factors of various students. Teachers should offer various learning opportunities through emergency online learning activities that address the students' learning demands and preferences, easing the learning burden. The study underscores the necessity of future educational reforms and policy initiatives to recognize students' diverse conditions and realities completely and continuously adapt the emergency online learning activities and learning delivery mode to the local context. Moreover, this investigation illuminated the infrastructure conditions that support the online learning process during the emergency situation in both urban and rural areas.

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DECLARATION OF COMPETITING INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Audi Yundayani: Conceptualization; Investigation; Project administration; Resources; Supervision; Writing – original draft; Writing – review & editing.

Yatha Yuni: Investigation; Methodology; Validation; Writing – original draft (supporting); Writing – review & editing.

Fiki Alghadari: Data curation; Formal analysis; Investigation; Visualization; Writing – original draft (supporting); Writing – review & editing.

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