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May 2021

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Learning Readiness as a Predictor of Academic Resilience in Online Learning during School from Home

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Abstract

Learning readiness is considered as a supporting factor in academic resilience. Since the situation of school closure and learning from home due to the COVID-19 pandemics, there have been changes in learning methods that require students to readily use online learning. Unfortunately, students' readiness in online learning has not been widely discussed in terms of its effect on the student's academic resilience. The purpose of this study was to provide information on whether there was a significant relationship between online learning readiness and students' academic resilience during the school-from-home period. Participants in this study consisted of 1.681 students from five high schools in Bandung, Indonesia. The research used questionnaires that were based on the online learning readiness scale and the academic resilience scale. The questionnaires were distributed online. The data in this study were then analyzed using correlational and regression methods. The results showed that there was a moderately significant relationship between student readiness in online learning and student academic resilience during the school-from-home period. Also, online learning readiness significantly predicted student academic resilience through the dimensions of motivation for learning and self-directed learning. This study emphasized the importance of student readiness in online learning as a new learning strategy during school from home in increasing academic resilience and success.

Keywords : *Online learning readiness, academic resilience, school from home, students, Indonesia*

INTRODUCTION

The COVID-19 virus outbreak has affected all aspects of human life from education, sports, entertainment, transportation, religious activities, economics, business, and politics. Even though people are dealt with a crisis and unpredicted challenges due to the risk of virus transmission, education should remain a priority. In Indonesia, with the increasing number of people infected by the COVID-19 virus outbreak, restricting learning activities at schools and diverting them to home become an inevitable solution to minimize the risk of virus transmission. As a result, the learning model in schools has shifted from face-to-face teaching to an online distant method [1]. The challenges of education in a pandemic period have an impact on schools and students. A lack of understanding of how to adapt to the sudden change can cause a decrease in the quality of learning. Some students are reported to experience pressure because they are difficult to overcome online-related problems. In addition, their academic resilience is fragile [2]. Academic resilience is a successful individual defense effort to face environmental difficulties [3], focusing on a challenge, risk, and pressure in experiencing poor learning / academic performance [4]. Previous research reveals that students who have academic resilience tend to be able to maintain their learning performance. In contrast, those who are less resilient will experience risks that lead to poor learning performance [5].

Academic resilience is an important part to successfully meet academic challenges [6] and encouraging student motivation and success [7]. Students who show hard work can solve problems, see difficulties as opportunities, adjust learning methods, look for other learning sources, and avoid negative responses. These behaviors are often perceived as signs that show academic resilience [8]. Due to changes in learning methods in schools, academic resilience is an important thing that students need in order to stay connected to the learning processes and methods in achieving study success.

The process of distance learning in a current pandemic situation is generally carried out through the online learning method. It constitutes a solution that is in line with the rapid development of technology [9]. Through online learning, the learning process is more student-focused, innovative, and flexible. Online learning is a learning experience that can be carried out in synchronous and asynchronous manners. Such learning situations are made possible through devices with internet access and enable the students to interact with instructors and other students [10]. In practice, online learning can be implemented through video conferences or discussions between instructors and students to keep the class interactive. It requires good

access to internet connection. It can be accessed via laptops and phone cellular where the learning process takes place by watching recorded videos, giving comments and feedback, and doing assignments that are easily accessible [11].

Previous research has shown that online learning can significantly increase retention in information and the efficiency of learning time. However, there are special challenges that must be addressed regarding the readiness of students in online learning. For instance, some students who have limited internet access or technology may experience barriers to participate in digital learning. To this extent, online learning readiness is developed in five dimensions, namely internet self-efficacy, self-directed learning, learner control, motivation for learning, and online communication self-efficacy [12]. During school closures, online learning methods will still be used, and to ensure the effectiveness of online learning, students' readiness in online learning is an important factor. If students have adequate readiness to access technology and adapt to the right learning situation, online learning can potentially be more effective and the students need less time to learn at their own pace. The effectiveness of online learning is influenced by the student's readiness which actually can vary among students. This is important in relation to their academic resilience while participating in learning from home. For that reason, this study will explore the relationship between online learning readiness and academic resilience and examine the significance of online learning readiness as a predictor of student academic resilience.

LITERATURE REVIEW

Online Learning Readiness

With the rapid development of technology, the definition of online learning has evolved [10]. Some definitions are not clear and some others can change according to the concept and context. Online learning is a method in the teaching-learning process that focuses more on students, leading to learning experiences in synchronous or asynchronous situations using devices and internet access [13]. Other terms of online learning have ever been used in previous studies, such as e-learning, blended learning, online education, online courses, distance education, distance learning, web-based learning, computer-assisted instruction, web-based training, computer-assisted learning, etc. To provide an understanding based on the integration of several terms, the definition of online learning can be interpreted as learning using the internet / online computer in a synchronous classroom where there are participants who interact with instructors and other students and do not depend on their physical location to participate in the learning

experience. [10]. Because online learning continues to grow, several researchers continue to identify and ensure whether online learning can run effectively. Its success is determined by the readiness of students in the online learning environment [14] [15].

Readiness in online learning includes three aspects, such as the preferences of students who work more challenging the different forms of delivery with face-to-face classes, student beliefs in using electronic communication for learning and competence in the use of the internet and communication via computers, and the ability to engage autonomously in learning [16]. With a focus on the effectiveness of learning, previous studies on online learning readiness have been directed at developing a measurement instrument for online learning readiness [17]. Online learning is mediated by devices and networks, therefore individuals need to have an assessment of their ability to use computer technology or internet self-efficacy. Using a social cognitive perspective, self-efficacy beliefs encourage humans through thought processes, motivation, affection, and decision making [18]. Internet self-efficacy is not simple in activities related to using the internet but is the application of skills (such as problem-solving) that require activities in using and maintaining the internet [19].

Online learning requires the nature of student-led learning so that initiative is needed in understanding self-learning needs, setting learning goals, identifying learning materials, and implementing appropriate learning strategies to evaluating learning outcomes. The concept of self-directed learning is an approach that encourages students to take responsibility and control over their thinking and self-management in a learning process that [20]. Previous studies have shown that successful students take the initiative in online learning at the speed with which they gain knowledge from learning [21]. Online learning is a web-based instruction system and will provide more access to a wide range of information sources. There is maximum freedom for participants to use learning resources and determine the speed of learning [22]. Therefore it is necessary to control their own thoughts to explore more sources of information. Student control is a condition when students can direct their own experience and learning process [23].

Online learning is a space for learners to freely determine the path and sequence of their learning [24], which is related to how participants assess their online presence [25]. It plays an important role in the success of learning [26]. In online learning, motivation has a significant effect on student resilience and achievement. Apart from that from the student's perspective, learning motivation arises from various reasons such as test scores, and rewards [27]. Online learning involves online communication with computer mediation so it is advisable to use online discussions to provide space for participants to ask and answer questions between students and

instructors [28]. Interacting is a learning strategy to better understand information, by trying to explore the information to make it more understandable,. Thus, the students must be skilled in self-efficacy in online communication in working with other online participants to stay motivated.

Academic Resilience

The concept of resilience is defined as the process and capacity to succeed in challenging circumstances [29]. It refers to patterns of positive adaptation to these challenges [30]. Resilience is a component of a person in making a personal assessment of difficulties, and evaluating these results on specific events that occur, and constructed to support a special context in a multidimensional manner [29]. Academic resilience is a form of individual resilience that is specific to the context of education, which is defined as the capacity to overcome difficulties that are seen as a challenge to student educational development [31].

Academic resilience focuses on the challenges, risks, and pressures of experiencing poor academic / learning performance [4]. Previous studies on academic resilience are mainly directed at the constructs of measurement [32] and academic resilience scales [4]. The process of resilience emphasizes individual efforts to rise from adversity, restore the situation to a new normal [8] [32], and integrate cognitive-affective aspects and adaptive and non-adaptive behavior. There are three dimensions in explaining students' academic resilience, which represent the context for persistence, adaptive reflection and seeking assistance, and negative influence and emotional response [8]. The first dimension is perseverance. It is associated with the character and reactions of students which include optimal performance, determination to achieve success, following plans, directing goals, using feedback, solving innovative problems, and understanding difficulties as opportunities. The second dimension is the reflection and adaptive help-seeking. They are considered as the strengths and weaknesses of individuals, the willingness to use various other learning methods, actively seeking help when facing difficulties, receiving support and getting encouragement, evaluating self-success, and focusing on reward and punishment. Finally, the third dimension is negative affect and emotional responses which lead to character and reactions such as anxiety, stress, and individual efforts to avoid negative responses.

Academic resilience is a new approach that identifies students' academic resilience profiles through three dimensions of perseverance, reflection and adaptive help-seeking, and negative

affect and emotional response. Earlier studies suggested that these specific dimensions identify measures of general attitudes of resistance that characterized identical mood attributes [33]. The academic resilience scale identifies cognitive-affective and behavioral responses to difficult situations in the learning / academic process to achieve effective approaches to learning [18]. Also, it identifies non-adaptive reactions to academic difficulties and to help structure interventions to strengthen students' academic resilience.

Online learning readiness and academic resilience

Academic resilience is a process of personal assessment dealing with challenges of learning situations and is an effort of students to respond to difficulties related to crises. It is pursued by self-efficacy beliefs [18]. Academic resilience through the learning process is an important factor to avoid academic failure and achieve study success [4]. On the other hand, online learning readiness is an alternative learning method that requires cognition, affection, motivation, and decision-making on student learning situations through self-assessment of self-efficacy in the internet use and computer media communication. Self-management during the online learning process requires students to take self-initiative and self-control in directing the learning experience. The attitude of students in online learning readiness is an important component to ensure if online learning can run effectively during a pandemic situation. The limited distance in learning is a challenge for students to be able to survive and achieve new adaptations. Thus, perseverance is needed to encourage the students to work harder to achieve goals. The perseverance dimension also requires student's active participation to use learning methods or seek help when information is not understood and other efforts to avoid negative responses.

Previous research has revealed that blended learning has a significant relationship with academic resilience during times of natural disasters, civil emergencies, and crises [34]. Unfortunately, a study that is unique to examine the relationship between online learning and academic resilience during the global pandemic situation remains limited. In fact, the effectiveness of learning generated through students' readiness to learn online can be a predictor and may increase students' academic resilience or achieve adaptive behavior [8]. This study was then conducted to fill this gap by examining whether a meaningful relationship existed between online learning readiness and academic resilience among new high school students. In order to

achieve the objectives and contribute to the relevant literature, the research proposed the following research questions:

RQ1: Is there a statistically significant relationship between online learning readiness and academic resilience when the students study from home?

RQ 2: Does the readiness of students in online learning serve as a significant predictor of their academic resilience when the students study from home?

METHODS AND MATERIAL

Participant

The statistical population of this study consisted of new students from five high schools in Bandung, Indonesia. During the COVID-19 pandemic, the students attended school from home. The sample consisted of 1.681 students (736 boys and 945 girls) who participated in the new student orientation program. The five schools in this study are ICT-based public schools in Bandung that have implemented online learning through applications [35]. The data collection activities in this study were part of the orientation program sessions held in each school.

Measurement

Online learning readiness. The scale of readiness in online learning was used to measure students' readiness in online learning [12]. This scale consisted of 18-items and was designed on a 5-point Likert scale. The items asked five dimensions of readiness covering Internet self-efficacy (ISE; 3 items), Self-directed learning (SDL; 5 items), Learner control (LC; 3 items), Motivation. to learn (MFL; 4 items), and Online communication self-efficacy (OCS; 3 items). The internal consistency reliability of this scale was shown by the Cronbach alpha coefficient. The values were 0.71 (ISE), 0.66 (SDL), 0.53 (LC), 0.68 (MFL), and 0.64 (OCS). Meanwhile, the total scale was 0.85

Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity that you use in an equation.

Academic resilience. The Academic Resilience Scale [8] was developed to measure students' academic resilience. This scale consisted of 30-items and measured three dimensions

such as perseverance (PER; 14 items), reflective and adaptive help-seeking (RAH; 9 items), and negative affect and emotional responses (NAE; 7 items). Participants were asked to respond to the current learning situation using a 5-point Likert scale ranging from very inappropriate (1) to absolutely appropriate (5). The total scale score was obtained from the sum of all item scores (30-150). The internal consistency reliability of this scale was calculated using the Cronbach alpha coefficient. Previous research on Cronbach's alpha coefficient on this scale was 0.90 [8]. Meanwhile, the total internal consistency reliability results of the current scale were 0.78, with the values of 0.63, 0.80, 0.62 for the factors of perseverance, reflective and adaptive help-seeking, and negative affect and emotional responses, respectively.

Data Analysis

The data collected in this research were analyzed using SPSS 23. Pearson's moment product correlation analysis was used to identify the correlation between students' readiness to learn online and academic resilience among students. Furthermore, multiple linear regression was used to determine predictions on the dimensions of online learning readiness for academic resilience.

RESULT

The total score of each item in each dimension of student readiness in online learning was calculated and divided by the number of items on that dimension. A higher average score indicated a stronger level of readiness. The results of this research reported that the average score of the relative dimension ranged differently from 3.2817 to 3.7152 (on a 5-point Likert-type rating scale). This data implies that students show a level of readiness to undertake online learning. For academic resilience, a higher mean score indicated a stronger level of learning resilience. In this research, the average score of the relative dimension ranged from 3.3061 to 3.7185 (5-point Likert-type rating scale) indicating that students had relatively moderate resilience in academic activities from home. (Table 1).

In order to answer the first research question (RQ1), a correlation analysis was conducted to identify the correlation between students' readiness to learn online and academic resilience. The data showed that there was a significant positive relationship between students' readiness in online learning and academic resilience ($r=.663$; $p\leq.01$). The dimensions of internet self-efficacy with perseverance ($r=.355$; $p\leq .01$), and reflective and adaptive help-

seeking ($r=.357$; $p\leq.01$). additionally, there was a significant positive relationship between self-directed learning and perseverance ($r=.537$; $p\leq.01$), reflective and adaptive help-seeking ($r=.559$; $p\leq.01$), and negative affect and emotional responses ($r=.167$; $p\leq.01$). The data also reported a significant positive relationship between learner control and perseverance ($r=.385$; $p\leq.01$), reflective and adaptive help-seeking ($r=.384$; $p\leq.01$), and negative affect and emotional responses ($r=.201$; $p\leq.01$). Another significant positive relationship was also documented between motivation for learning and perseverance ($r=.594$; $p\leq.01$), reflective and adaptive help-seeking ($r=.628$; $p\leq.01$), and negative affect and emotional responses ($r=.099$; $p\leq.01$). finally, the research revealed a significant positive relationship between online communication self-efficacy and perseverance ($r=.357$; $p\leq.01$), reflective and adaptive help-seeking ($r=.372$; $p\leq.01$), and negative affect and emotional responses ($r=.054$; $p\leq.05$). (Table 2).

Regression analysis was carried out to identify predictors and degrees of significance among students 'readiness to learn online towards their academic resilience (RQ2). Based on the regression analysis, there was a moderate, significant relationship between students' readiness in online learning and perseverance ($R=0.64$; $p\leq.01$).

This predictor variable explained 42% of the variance in perseverance. The order of significance of the dimensions of online learning readiness on perseverance based on the standard regression coefficients started from the motivation for learning ($\beta=.21$), self-directed learning ($\beta=.16$), online communication self-efficacy ($\beta=.02$), and dimensions of internet self-efficacy ($\beta=.04$). The t-test results on the significance of the regression coefficient showed that the dimensions of online learning readiness such as motivation for learning ($t=16.1$; $p\leq.01$), self-directed learning ($t=11.4$; $p\leq.01$), online communication self-efficacy ($t=2.75$; $p\leq.01$) and internet self-efficacy ($t=2.36$; $p\leq.05$) were significant predictors of academic resilience in perseverance. (table 3).

Table I. Descriptive Statistic of Online Learning Readiness and Academic Resilience Dimensions

Dimensions	Min	Max	Mean	SD
OLR-ISE	1.00	5.00	3.6365	0.6692
OLR-SDL	1.20	5.00	3.6559	0.51729
OLR-LC	1.30	5.00	3.2817	0.59110
OLR-MFL	1.30	5.00	3.7152	0.55682
OLR-OCS	1.00	5.00	3.3319	0.67147
AR-PER	1.00	5.00	3.3061	0.31023
AR-RAH	1.90	5.00	3.7185	0.47810
AR-NAE	1.80	5.00	3.3518	0.45331

Note. OLR-ISE: Internet self-efficacy; OLR-SDL: self-directed learning; OLR-LC: learner control; OLR-MFL: Motivation for learning; OLR-OCS: Online communication self-efficacy; AR-PER: Perseverance; AR-ASS: Reflective and adaptive help-seeking; AR-NAE: Negative Affects and emotional response

Table II. Correlation Matrix between Online Learning Readiness and Academic Resilience

	1	2	3	4	5	6	7	8
1. OLR-ISE	1							
2. OLR-SDL	.392**	1						
3. OLR-LC	.379**	.557**	1					
4. OLR-MFL	.423**	.554**	.488**	1				
5. OLR-OCS	.431**	.371**	.403**	.439**	1			
6. AR-PER	.355**	.537**	.385**	.594**	.357**	1		
7. AR-RAH	.357**	.559**	.384**	.628**	.372**	.704**	1	
8. AR-NAE	.030	.167**	.210*	.099**	.054*	-.092**	.024	1

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Table III. Regression Matrix between Online Learning Readiness and Academic Resilience

		Perseverance	Reflective and Adaptive Help-Seeking	Negative Affects and emotional responses
		[R=.64; R ² =.42] F(5-1680) =244.081; p=.00	[R=.68; R ² =.46] F(5-1680) =290.872; p=.00	[R=.22; R ² =.05] F(5-1680) =17.634; p=.00
Internet Self-Efficacy	β	.052	.036	-.066
	t	2.369	1.700	-2.335
	p	.018*	.089	.020*
Self-Directed Learning	β	.280	.299	.106
	t	11.432	12.672	3.362
	p	.000**	.000**	.001**
Learner Control	β	-.007	-.036	.182
	t	-.293	-1.594	5.978
	p	.770	.111	.000**
Motivation for learning	β	.393	.435	-.008
	t	16.177	18.613	-2.251
	p	.000**	.000**	.801
Online communication self-efficacy	β	.061	.069	-.027
	t	2.758	3.241	-9.951
	p	.000**	.001**	.342

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Furthermore, there was a moderate, significant relationship between student readiness in online learning with reflective and adaptive help-seeking ($R=.68$; $p \leq .01$). This predictor variable explained 46% of the variance in reflective and adaptive help-seeking. The order of significance of online learning readiness on reflective and adaptive help-seeking based on the standard regression coefficients was begun from the motivation for learning ($\beta= .43$), self-directed learning ($\beta= .29$), and online communication self-efficacy ($\beta= .06$). The assessment of the t-test results on the significance of the regression coefficient showed that the dimensions of online learning readiness such as motivation for learning ($t= 18.6$; $p \leq .01$), self-directed learning ($t=12.6$; $p \leq .01$), and online communication self-efficacy ($t=3.24$; $p \leq .01$) were significant predictors of academic resilience in reflective and adaptive help-seeking. (table 3)

DISCUSSION

This study aimed to examine the relationship between online learning readiness and students' academic resilience during the school-from-home period. The results of the study showed that indeed there was a relationship between online learning readiness and academic resilience. The literature review suggested that there was a growth arising from self-efficacy [18] and skills that played an important role in academic success [26]. The pieces of literature mentioned above were confirmed by the findings of the current study. An in-depth analysis of the study findings showed that there was a significant positive relationship between student readiness in online learning through the dimensions of motivation for learning, self-directed learning, online communication self-efficacy, internet self-efficacy, and academic resilience. In other words, the condition of online learning readiness (all dimensions) is increasing. As the result, the behavior tendency is assessed as part of increased academic resilience as well.

The moderate relationship between online learning readiness in the dimensions of motivation for learning and self-directed learning and academic resilience in the dimensions of persuasion and reflective-and-adaptive help-seeking indicated that motivation in students during online learning and initiatives in understanding needs, goals and identifying learning material was quite meaningful in encouraging hard work in achieving learning performance, and solving problems when facing difficulties, getting encouragement, and evaluating academic success.

Another finding from this study showed that online learning readiness estimated a 42% level of academic resilience in the perseverance dimension. Meanwhile, motivation for learning and self-directed learning has greater predictive power than other dimensions of online learning readiness. It can be implied that students who have the drive to direct themselves to be involved in online learning activities and are followed by an understanding of their learning needs and learning objectives can increase their achievement of learning performance and achieve their learning goals. Student motivation also appears to be related to the clarity of information about learning objectives and the output that students must take. Previous research mentioned that the motivation of online learning for intrinsic and extrinsic reasons [27] had a significant effect on students' academic resilience. Strikingly, it is confirmed by the findings in this research. Apart from that, hard work and achievement of learning performance were also partially predicted by the assessment of students' ability to use computer technology and online communication interaction skills. Online learning readiness predicted 46% of academic

resilience in the reflective and adaptive help-seeking dimensions. Additionally, the motivation for learning and self-directed learning ability have more predictive power when compared to other dimensions of online learning readiness. It means that individuals who have intrinsic and extrinsic drive as well as understand their learning needs and management can potentially encourage the willingness to use various learning methods, actively seek help, get encouragement and evaluate self-success, and focus on achieving rewards and avoiding punishment. As an affirmation, reward and punishment are also concepts to explain extrinsic motivation [24]. The ability to interact with online communication also encourages students to be active in seeking help with difficulties and support (such as actively communicating on social media with students in class or with teachers)

It was observed that online learning readiness predicted a 5% level of academic resilience in the negative effects and emotional responses dimension. Although, in general, the learner's control and self-directed dimensions had a low level of prediction, they explained a stronger prediction than the other dimensions. It implies that self-control over thoughts of thinking to direct the learning experience while taking the initiative to understand the needs and goals of learning can increase anxiety. In this sense, anxiety can be directed towards increasing online learning readiness. Meanwhile, self-assessment of the ability to use the internet can reduce anxiety and avoid negative responses (such as mastering online learning applications, proficiency in using LMS, and so forth). Academic resilience through the learning process is an important factor to avoid academic failure and achieve study success [4]. Online learning can run effectively if it is supported by the skills of students in using the internet. In line with this study, the findings reported that online learning readiness and academic resilience had a significant relationship. Furthermore, the dimensions of motivation for learning and self-directed learning had greater predictive power than other dimensions of academic resilience. These results indicate that the two predictors of online learning readiness are important factors in the student learning process implemented in increasing academic resilience during the school from the home period.

CONCLUSION AND IMPLICATION

In conclusion, this study revealed several key findings. First of all, there was a moderate, significant relationship between students 'readiness to learn online and students' academic resilience. It was explained that the aspects of motivation for learning and self-

directed learning had a significant relationship with perseverance and reflective-and- adaptive help-seeking. This study also reported that academic readiness was able to play a significant role as a predictor of student resilience in online learning. The strongest predictor aspects were named the motivation for learning and self-directed learning. Meanwhile, the learner control aspect was significant in the dimensions of negative affects and emotional responses. Other aspects of readiness were internet self-efficacy and online communication self- efficacy as a complement to academic resilience. It can be concluded that students 'academic resilience during the homeschooling period can be increased by increasing students' intrinsic and extrinsic motivation. It can be also developed by their initiatives to understand learning needs and goals, besides other readiness that complements strengthening other academic resilience such as controlling focus and thinking, the ability to operate technology and the internet, and establish online interaction communication. This study emphasizes the importance of student readiness in online learning in COVID-19 pandemic as a new learning strategy during homeschooling in increasing academic resilience and success. However, this research still has limitations and further research is needed to examine what forms of online learning can increase learning motivation, what kind of persistence affects academic resilience, what anxiety can build academic resilience.

The results of this study reveal several dimensions of online learning readiness in COVID-19 Pandemic that require little special attention, namely learner control and online communication self- efficacy. Teachers at schools play a role by developing realistic learning objectives for students and ensure the clarity of subject matter to students. For example, the teachers may explain the topic of discussion and the purpose of each meeting before students take control of their learning. The teacher can also design more varied learning activities in assignments that require more time for students to find sources of information that support learning objectives. Teachers can also use more learning modes in the form of group discussions to improve the quality of interaction among students, especially for students who passively participate during the online learning process. Finally, the teachers may prepare instant messaging tools so the teachers can respond to and support the students quickly.

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