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Impact of the COVID-19 pandemic on Malaysian and Indonesian educators in tertiary institutions

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ABSTRACT

This study investigated the challenges encountered by educators conducting online teaching during the COVID-19 pandemic in Malaysian and Indonesian higher learning institutions. Quantitative and qualitative methods were used to obtain information in this study. The respondents comprised 250 educators from Malaysian and Indonesian higher learning institutions. A self-developed Likert-scale online questionnaire was given to the respondents. The study findings revealed that Malaysian educators faced greater challenges in mental health, time management, and assessments. In comparison, Indonesian educators experienced more challenges in demonstrating compassion to students during online teaching. Educators in both countries encountered poor internet connectivity, lack of interaction and engagement with students, stress, and anxiety. Opportunities created by the COVID-19 pandemic comprise exploring and learning online teaching tools, producing online teaching and learning materials, conducting research, and writing research papers for publication. Recommendations for addressing online teaching challenges and suggestions for future research are also discussed.

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1. INTRODUCTION

On December 31st, 2019, Wuhan City Health Committee reported a cluster of 27 pneumonia cases stemming from an unknown etiology. The initial source linking to the subsequently closed Wuhan Huanan Seafood Wholesale Market was later identified as a novel coronavirus [1]. The World Health Organization (WHO) declared COVID-19 a pandemic [1]. WHO advised the public to practice social distancing by staying home, avoiding social gatherings in crowded places, and maintaining at least one meter or three feet distance from others to reduce infection chances and virus spread.

The COVID-19 outbreak has caused universities worldwide, including Malaysia and Indonesia, to close campuses and conduct online distance learning (ODL). The ODL implementation is not feasible when equipment or connectivity is insufficient. Besides, educators must be provided with adequate technology-related training and technical support to increase their knowledge to adopt ODL [2] and ensure maximum technology utilization. Some educators were going online for the first time due to COVID-19. Shifting from traditional to online classes presented a colossal challenge to educators to adapt all their classes urgently and massively to distance learning to maintain educational continuity [3]. They need to prepare and conduct

online classes while juggling other responsibilities at home. High preparedness level is required to quickly adapt to the environmental changes and adjust to online learning during the pandemic. Educators also face mental health problems such as stress, fear, anxiety, depression, isolation, and insomnia during the pandemic as they need to transition to a new teaching format quickly [4]. Educators experiencing burnout are more likely to leave the profession [5]. Recent studies showed that online teaching is stressful and time-consuming for lecturers and students [6].

Time management is also a concern for educators in managing ODL during COVID-19 [6]–[8]. The lockdown provided people with ample free time. Some people may use it creatively for self-care, whereas some may get bored and frustrated [9]. More tasks can be completed in a short period if managed efficiently. However, managing time effectively is crucial to ensure efficiency in the educational process, especially working from home during the pandemic. Striking a balance when working at home is challenging as people have other responsibilities. Similar to traditional classrooms, planning is essential for an online classroom environment. However, online class preparation might not be easy for first-timers because specific technical skills are required and may take longer than expected [10], [11]. Creating lesson plans and assessments is part of an educator's job and can be time-consuming. Moreover, online learners may have limited perceptions of the teachers' availability and response time. Hence, adhering to the parameters such as availability, response time, and deadline is crucial [12].

Teaching is characterized as a humanistic profession that requires kindness, care, compassion, empathy, and understanding [13]. According to Merriam-Webster [14], compassion is defined as a "sympathetic consciousness of other's distress together with a desire to alleviate it." Most countries, including Malaysia and Indonesia, have significant problems with technical infrastructure in rural areas. Thus, online education quality can be a significant concern. In certain situations, educators may need to reach out to support struggling students personally. Offering compassion and concern might help students overcome discouragement, anxiety, and frustration and motivate them to strive despite the challenges. Educators' caring expression should reflect communal compassion rather than personal competence during unpredictable and uncertain times [15]. Compassionate educators are more determined to facilitate students' online learning [16] and face challenges in providing prompt feedback to students [17]. Students' lack of interaction and engagement is a drawback and concern during online classes [18], [19].

Assessment is also a part of the learning process [20], involving quizzes, assignments, tests, and projects that provide opportunities for students to demonstrate and practice their understanding. Besides, assessments provide feedback to educators on whether the expected learning outcomes have been achieved and for further improvement. The purpose of assessment is to rank or grade students and increase students' learning and development [20]. However, due to the sudden emergence of ODL, educators have to use online assessment methods compared to the traditional methods used in face-to-face classes. Moreover, evidence on effective online assessment methods used at higher learning institutions during the pandemic is limited. Managing online assessments at higher learning institutions is challenging [21], [22]. The online assessment methods include online quizzes, built-in continuous feedback, multiple-choice questions, viva-voce using real-time communication technology, automated assessment for essays, speed grader, and plagiarism check software. Nevertheless, educators require training, motivation, an online platform, and technical support to utilize these methods [23]. Studies showed that reduced paper usage and flexible time are among the benefits of online assessments. However, some studies argued that online assessments have negative impacts, mainly psychological stress, on educators and students due to rigid technological settings because they should involve two-way communication [24]. Pokhrel and Chhetri [17] opined that the administration of ongoing online assessments differs concerning educators' convenience, expertise, and student compatibility. Providing available and helpful online formative assessments remains a challenge for educators [17]. Regulation and control of cheating in online assessments are impossible because instructors are confined to proxy supervision of the students [25].

Educators are struggling to adapt to the new norm due to COVID-19, and their workloads are increasing as they need to prepare learning materials for online teaching [26], [27]. Moreover, educators have to learn online teaching technology such as video conferencing platforms (Zoom, Google Meet, Microsoft Teams, or Cisco Webex), social media platforms (Facebook, Twitter, or Instagram), instant messaging (WhatsApp, Telegram, Lines, or Messenger), and e-learning platforms (Moodle) to teach students. Some may be overwhelmed with the various technological platforms available for online teaching and struggle to learn to use them in online classes [6], [8]. Moreover, adopting an online learning environment is a technical issue and a pedagogical and instructional challenge [28], [29]. Technology is the means for delivery and requires a close cross-collaboration between instructional, content, and technology teams [28]. Martin, Wang, and Sadaf [18] found that teachers are not adept at using synchronous and asynchronous technology.

In light of the six constructs (mental health, time management, compassion, adaptability, assessments, and instructional technology), and the problems as well as the challenges encountered by the educators when conducting ODL in Malaysia and Indonesia, this study is guided by the following research questions (RQ): i) What impact does the transition from traditional face-to-face to online teaching during the COVID-19 pandemic have on Malaysian and Indonesian educators' mental health, time management, compassion, adaptability, assessment, and instructional technology? (RQ 1); ii) Is there any significant difference between Malaysian and Indonesian educators by subscales due to the transition from traditional face-to-face to online teaching during the COVID-19 pandemic? (RQ 2); iii) Is there any significant difference between Malaysian and Indonesian educators in each subscale due to the transition from traditional face-to-face to online teaching during the COVID-19 pandemic? (RQ 3); iv) What were the insights gained by the Malaysian and Indonesian educators in terms of the advantages and disadvantages of online learning, the most and least popular online teaching tools used, change of educator's role, and opportunities which arise from the switch from face-to-face to online classes during the COVID-19 pandemic? (RQ 4).

2. RESEARCH METHOD

Empirical research on the COVID-19 pandemic is scarce due to the novelty of the virus. Thus, the survey instrument for this study was developed based on information culled from current research articles, journalistic reports, professional publications, and website articles. The instrument designed comprised a Likert-scale questionnaire with 24 items based on six constructs: mental health, time management, compassion, adaptability, assessments, and instructional technology, and four open-structured items. The instruments were constructed to assess higher institutions learning perceptions of problems and challenges faced during their experience teaching in the pandemic environment.

The Google Form survey collected data for the research questions, including three quantitative questions and one open-ended question. It was distributed to educators in Malaysia and Indonesia via the internet for data collection. The data collection duration lasted four weeks. The online survey method included distributing the online survey via personal social media posts, email to colleagues, and private chat groups in universities. All participants who willingly consented and entered the Google Form survey platform were asked to complete six demographic items and 28 standardized assessment instruments without collecting participants' "personally identifiable information". The data collected were exported and analyzed using the SPSS statistical analysis software for descriptive statistics, independent sample t-test, and analysis of variance (ANOVA). The questionnaire was initially tested with a pilot study involving 30 educators, and the overall internal consistency was acceptable (Cronbach's Alpha at 0.89). The questionnaire content was face-validated by an expert in survey methodology for scholarly research, who suggested minor word changes for several questions.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Demographics of participants

Participants of this study were 250 male (41.9%) and female (58.1%) educators from Malaysia and Indonesia. 57.2% of educators were from Malaysia, while 42.8% of educators were from Indonesia. The educators comprised tutor (2.8%), lecturer (39.2%), senior lecturer (41.2%), associate professor (12.8%), and full professor (4.0%). Among the educators, 2.4% were 30 years old or younger, 71.6% were between 31 to 50 years old, and 26.0% were 51 years old or older. Regarding the educators' teaching experience, 30.8% have 10 or less than 10 years of experience, 45.2% have 11 to 20 years of experience, and 24% have 21 or more than 21 years of experience. Since the COVID-19 restrictions, 85.6% of educators were teaching at home, 6% at higher learning institutions and 12% teach at home and higher learning institutions.

3.1.2. Quantitative analysis

Descriptive statistics were used to analyze the answers for the first research question, and inferential statistics using independent t-tests for the second and third research questions. The results were analyzed and presented according to RQ 1. The descriptive statistics in Table 1 demonstrate that Malaysian educators have a higher mean, M value in mental health (M=3.224), time management (M=3.757), and assessments (M=4.068), while Indonesian educators have a higher M value in compassion (M=3.287), adaptability (M=3.292), and instructional technology (M=3.668).

Table 1. Descriptive statistics and independent sample t-tests on constructs and subconstructs

	Items	Malaysia		Indonesia		F	Sig. (2-tailed)
		Mean	SD	Mean	Mean		
	Construct: Mental health	3.224	1.032	2.902	0.869	3.844	0.010*
1.	I am mentally tired after all my online classes.	3.67	1.168	3.252	1.125	0.018	0.005*
2.	I am highly stressed in preparing for and conducting my online classes.	3.552	1.203	2.897	1.063	2.511	0.000*
3.	I have been easily irritable and moody since I started my online teaching.	2.804	1.274	2.935	1.093	5.331	0.386
4.	I have not been sleeping well since I started my online classes.	2.867	1.349	2.523	1.231	1.863	0.040*
	Construct: Time management	3.757	0.891	3.540	0.608	17.398	0.023*
5.	It is a challenge to strike a balance between caring for my children/parents and doing my online teaching from home.	3.671	1.403	3.822	0.930	33.872	0.308
6.	I stay up late into the night to prepare my teaching materials.	3.455	1.362	3.065	1.101	11.310	0.014*
7.	I have to consider students' time span in my online classes.	4.455	0.679	3.869	0.814	0.162	0.000*
8.	Time constraint is a problem in delivering my lessons online.	3.448	1.287	3.402	1.072	6.411	0.760
	Construct: Compassion	2.933	0.900	3.287	0.867	0.001	0.002*
9.	I am not fully able to help my students whose home environments are not conducive to study, who lack mobile devices, and who experience poor internet connectivity.	3.776	1.159	3.598	1.106	0.208	0.222
10.	I am unable to reply to my students' queries all the time.	2.483	1.174	3.131	1.158	0.062	0.000*
11.	I cannot always make myself reachable to my students after their online classes.	2.539	1.282	3.130 8	1.133	3.332	0.000*
	Construct: Adaptability	3.246	0.760	3.292	0.594	5.186	0.596
12.	I am overwhelmed with the different types of technology platforms available for online teaching and learning.	3.804	1.050	3.374	0.885	1.331	0.001*
13.	Ensuring active interaction and engagement from students in my online classes poses a tough challenge.	4.126	0.926	3.710	0.836	0.028	0.000*
14.	I initially hesitated to use any technological tools in my online classes because the learning curve is too steep.	2.860	1.208	3.206	0.969	6.142	0.013*
11.	I am struggling to learn about and actively use instructional technology tools in my online classes.	3.182	1.237	3.589	0.932	13.798	0.003*
16.	I do not feel relatively confident in myself and have low self-esteem in managing my online classes.	2.259	1.118	2.57	1.082	0.120	0.024*
	Construct: Assessment	4.068	.636	3.883	0.548	5.260	0.014*
17.	Designing alternative forms of assessments via e-learning platforms and substituting final assessments with final assignments, projects, and portfolios are major challenges in my online teaching.	3.636	1.202	3.692	0.985	8.184	0.690
18.	Deterring plagiarism and cheating is a major concern in remote online assessments.	4.105	1.019	3.851	0.877	5.326	0.035*
19.	More attention should be given to formative (ongoing) assessments to gauge the students' understanding of content delivered during my online classes.	4.203	0.727	3.963	0.713	6.385	0.010*
20.	I have to reorient my assessments in terms of schedule, formats, quantity, duration, and marking projects, quizzes, assignments, tests or final exams for my online classes.	4.329	0.720	4.028	0.707	11.695	0.001*
	Construct: Instructional technology	3.659	0.745	3.668	0.641	4.123	0.917
21.	I find it challenging to use a combination of synchronous (live instruction-Zoom, video conferencing, Google Classroom, Google Meet) and asynchronous (delayed instruction - videos, postings) instruction in my online classes.	3.504	1.168	3.794	0.919	15.941	0.028*
22.	My synchronous online teaching is sometimes hindered by students' poor internet connectivity.	4.18	0.836	4.047	0.805	4.287	0.198
23.	I find synchronous online teaching exhausting.	3.552	1.079	3.486	0.915	4.982	0.599
24.	I find synchronous online teaching is more intimidating than asynchronous online teaching.	3.399	1.008	3.346	0.933	1.934	0.673

*Significant at the level of .05

In RQ 2, independent sample t-tests were used to test for significant differences in the constructs between Malaysian and Indonesian educators. Results in Table 1 indicates significant differences between Malaysian and Indonesian educators in mental health (F=3.844, p=0.010), time management (F=17.398, p=0.023), compassion (F=0.001, p=0.002), and assessments (F=5.260, p=0.014). Malaysian educators reported a higher M value in three constructs: mental health, time management, and assessments. These findings suggest that Malaysian educators experience more challenges in these three constructs compared to their Indonesian counterparts. However, Indonesian educators registered a higher M value in compassion than Malaysian educators, suggesting they faced more compassion issues than Malaysian educators during the transition from face-to-face classes to online teaching.

To answer RQ 3, independent sample t-tests were used to determine significant differences in each subconstruct. The results indicate a significant difference between Malaysian and Indonesian educators in the mental health subconstructs. The Malaysian educators were more likely to encounter mental tiredness after online classes (M=3.67, F=.018, p=0.005), to be highly stressed in preparing for the online class (M=3.55, F=2.51, p=0.000), and face sleeping issue after starting online classes (M=2.87, F=1.86, p=0.040). A significant difference was evident between Malaysian and Indonesian educators in the time management subconstructs. Malaysian educators faced a greater challenge in staying up late to prepare online teaching materials (M=3.45, F=11.31, p=0.014), and in considering students' time spent on the online class (M=4.45, F=0.162, p=0.000). For the compassion subconstructs, Indonesian educators encountered a greater challenge in replying to the students' queries constantly (M=3.13, F=.062, p=0.000), and making themselves reachable to their students after online classes (M=3.13, F=3.332, p=0.000).

Conversely, Malaysian educators experienced greater challenges in using the various technological platforms for online teaching and learning (M=3.80, F=1.133, p=0.001) and ensuring active interaction and engagement from students in the online classes (M=4.13, F=.028, p=0.000) in the adaptability subconstructs. Indonesian educators were more hesitant in using technological tools for online classes (M=3.21, F=6.142, p=0.013), less confident in managing online classes (M=2.58, F=.120, p=0.024), and struggled to learn and use instructional technology (M=3.59, F=13.798, p=0.003). In the assessment subconstructs, Malaysian educators experienced a greater challenge in deterring plagiarism and cheating in remote online assessment (M=4.10, F=5.326, p=0.035), providing more attention in gauging the student's understanding of content delivered during online classes (M=4.20, F=6.385, p=0.010), and reorienting the assessments schedule, formats, quantity, duration, and marking online assessments (M=4.33, F=11.695, p=0.001). In the instructional technology subconstructs, Indonesian educators found using a combination of synchronous and asynchronous tools in online classes (M=3.79, F=15.941, p=0.028) to be more challenging.

3.1.3. Qualitative analysis

In the RQ4, theme analysis was utilized to analyze the written responses provided by the Malaysian and Indonesian educators to four open-ended questions (Q): i) What are the advantages and disadvantages of switching from face-to-face to online classes during the COVID-19 pandemic? (Q1); ii) What are the most and least popular instructional tools for you in conducting online classes? (Q2); iii) In what ways does the educator's role change as classes go online? (Q3); iv) What are the opportunities that arise from the switch from face-to-face to online classes? (Q4).

Table 2 displays the themes emerging from participants' responses to the open-ended questions concerning the advantages and disadvantages of online learning, online teaching tools, change of educator's role, and opportunities arising from the switch from face-to-face to online classes with sample excerpts for each theme. Among the advantages are Malaysian and Indonesian educators enjoyed time flexibility in conducting online lectures and performing other tasks, saving time and transportation costs and providing better protection against COVID-19 by working from home. Regarding the disadvantages, Malaysian and Indonesian educators reported experiencing health issues such as mental fatigue, strained eyes, backache and sleep deprivation, and difficulty in monitoring students' engagement and participation. They added that poor internet connectivity affected online teaching and learning while conducting online assessments was problematic due to the inability to control plagiarism and cheating among students.

Table 2. Theme analysis of the educators' responses to the open-ended questions

Topic	Theme emerging from participants' responses
Advantages of online teaching	Flexibility of time
	Time and cost-saving
	Protection against COVID-19
Disadvantages of online teaching	Poor internet connectivity
	Health issues
	Difficulty in monitoring students' engagement and participation
	Problems in conducting assessments
Least and most important online teaching tools	Synchronous learning
	Asynchronous learning
Educator's role in online classes	Facilitator
	Educational technologist
Opportunities which arise	Exploring and learning online teaching tools
	Producing online teaching and learning materials
	Conducting research and writing research papers for publication

Malaysian and Indonesian educators highlighted Google Classroom, Google Meet, and Zoom as essential synchronous teaching tools for online teaching tools. In contrast, Skype and Microsoft Teams were the least important. Conversely, the educators' most favored asynchronous teaching tools were website links, video recordings, discussion boards, Telegram, and WhatsApp. The least favored ones are emails, weblogs (blogs), VoiceThread, Facebook, and Twitter. Malaysian and Indonesian educators played facilitator roles in online classes. Malaysian and Indonesian educators opined those opportunities arising from their involvement with online teaching included exploring and learning online teaching tools, producing online teaching and learning materials, conducting research, and writing research papers for publication.

3.2. Discussion

3.2.1. Differences between Malaysian and Indonesian educators in six subconstructs

Malaysian educators faced greater challenges in mental health, time management, and assessments during online teaching than Indonesian educators. However, Indonesian educators experienced more challenges in demonstrating compassion to students during online teaching than Malaysian educators. In the mental health subconstruct, Malaysian educators were more likely to encounter mental tiredness, and stress in preparing for online classes and face sleeping issues after starting online classes than their Indonesian counterparts. For the time management subconstruct, Malaysian educators faced a greater challenge in staying up late to prepare online teaching materials and considering students' time spent on online classes. These findings align with other studies that demonstrated ODL classes can be stressful, time-consuming [6], and lead to time management issues [6], [8]. In the compassion subconstructs, Indonesian educators had a greater challenge in continuously replying to the student's queries and making themselves reachable after online classes. Pokhrel and Chhetri [17] found that providing timely feedback to students in online teaching and learning is challenging. In the adaptability subconstructs, Malaysian educators experienced greater challenges using different technological platforms for online teaching, learning and ensuring active interaction, and students' engagement in online classes. These findings are similar to previous studies [6], [8] which indicated that the educators' inability to effectively use technology and studies [18], [19] shows a lack of engagement and interaction via online teaching and learning.

Conversely, Indonesian educators were more hesitant in using technological tools for online classes, struggled to learn and use instructional technology, and were less confident in managing online classes. In the instructional technology subconstructs, Indonesian educators found utilizing the combination of synchronous and asynchronous tools in online classes challenging. These findings parallel studies that showed educators lack confidence in engaging with computer teaching tools [6], [8] and synchronous and asynchronous technology [18]. In the assessment subconstructs, Malaysian educators experienced a greater challenge in deterring plagiarism and cheating in remote online assessment, providing more attention to students to gauge the student's understanding of content delivered during online classes, and reorienting the assessments schedule, formats, quantity, duration, and marking the online assessment. Previous researchers [25], [30] reported that teachers had restricted control and supervision over students' work, causing difficulty in preventing plagiarism and cheating among students in online assignments and assessments. Appropriate measures to detect plagiarism are not implemented in many schools and institutions due to the large student population [17]. Pokhrel and Chhetri [17] research echoes the study findings that providing online learners with available and helpful formative assessments is challenging for educators and the education system.

3.2.2. Insights gained by Malaysian and Indonesian educators during the COVID-19 pandemic

The Malaysian and Indonesian educators highlighted time flexibility to conduct online classes, saved time and transportation costs in traveling to and from the workplace, and protection from contracting the virus by working at home as advantages of online teaching during the pandemic. The advantages suggest a trade-off between the stress and anxiety of adapting to the new teaching norm and using various technological platforms in teaching online. Conversely, Malaysian and Indonesian educators faced internet connectivity problems, experienced difficulty in monitoring students' engagement and participation, and health issues such as mental fatigue, strained eyes, backache, and sleep deprivation as the disadvantages of online teaching during the pandemic. Poor internet connection, lack of internet access, and a high-speed network pose significant challenges for educators and students in Southeast Asian learning institutions [19]. Online teaching can be troublesome as educators have the biggest responsibility for making online classes interactive and engaging for students [19]. The unexpected workload of preparing online teaching materials and using different teaching platforms has caused educators stress and anxiety, leading to health issues [30].

In the unprecedented shift to online teaching, Malaysian and Indonesian educators reported opportunities to explore and learn online teaching tools, produce online teaching and learning materials, conduct research, and write research papers for publication. The migration to online teaching has compelled educators to be digitally competent to teach in the new norm. The global diversion of academic attention to

COVID-19 unsurprisingly augurs for Malaysian and Indonesian educators to venture into research activities on the current issue. Malaysian and Indonesian educators tend to use a combination of synchronous and asynchronous teaching tools in online teaching. Synchronous and asynchronous teaching tools are helpful to these educators because of their complementary nature of these tools. The most preferred synchronous teaching tools were Google Classroom, Google Meet, and Zoom. The educators were more comfortable with these tools and found them easy when delivering live online classes. Conversely, the most favored asynchronous teaching tools were website links, video recordings, discussion boards, Telegram, and WhatsApp. These tools enable students, especially those who miss classes due to poor internet connectivity, to replay recorded lectures several times to understand better the content in preparation for assignments, quizzes, tests, and final assessments.

4. CONCLUSION

The sudden transition to online learning in learning institutions worldwide caused by the COVID-19 pandemic has posed challenges and created opportunities for Malaysian and Indonesian educators. Malaysian educators encountered greater challenges in mental health, time management, and assessments than their Indonesian counterparts. However, Indonesian educators' concerns were more related to compassion issues on being accessible to students' queries after online classes and providing prompt feedback. Both Malaysian and Indonesian educators struggled to adapt to computer technology in online teaching and ensure interaction with students. The drawbacks of online teaching endured by educators include poor internet connectivity, lack of interaction and engagement with students, stress, and anxiety. Amidst the overwhelming challenges for educators, opportunities created by the COVID-19 pandemic comprise exploring and learning online teaching tools, producing online teaching and learning materials, conducting research, and writing research papers for publication. Synchronous and asynchronous platforms have become part of educators' online teaching experience. The educators' roles are seen as facilitators and educational technologists charting online teaching and learning course.

As the COVID-19 crisis continues into the unforeseeable future and online teaching is the new norm, concerted efforts should be taken by authorities and faculties of higher learning institutions in Malaysia and Indonesia to address the challenges for a successful and sustained online education during and after the crisis. Educational institutions in both countries should improve internet connectivity for online learning, expanding technological infrastructure to facilitate online teaching and learning via various digital platforms. The countries should enhance educators' knowledge and skills in using technology and provide training programs for stress and time management, alternative assessment approaches, and supervision to curb cheating and plagiarism online.

This study has its limitations as the sample size is small. The study findings are confined to the participants involved and cannot be generalized to the educators' population in Malaysia and Indonesia. Future research can include a bigger sample of educators from public and private universities and colleges in both countries. Another research area to explore is comparing educators teaching disciplines from different faculties using distinct online teaching and learning platforms on students' performance.

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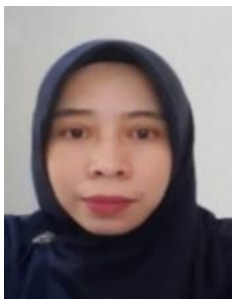

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