Construct Validity of Adaptive Performance: A Case of Malaysian Lecturers

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Abstract: The virtual mode of the classroom that changes from the traditional education model poses challenges among the educators especially the inability to cope with the adaption of educational technologies. Online literacy is the basic skill to exercise an outstanding performance during changing environments. However, the conceptualization of adaptive performance seeks further exploration mainly because the past studies focus on the specific context. This study aims to present the validity and reliability of the adaptive performance construct related to online teaching platforms among Malaysian public university lecturers. The questionnaire was designed using Google Form and the adopted questionnaire was emailed to lecturers of Malaysian Research Universities (henceforth, RUs) via their institution's email address. The data were then analyzed using the SmartPLS software through the measurement model analysis. The analysis involved a second-order approach where the outer loading values, the convergent validity of Average Variance Extracted (henceforth, AVE), and reliability analysis of the adaptive performance construct. The findings suggest that the validity and reliability of the construct were established for the context of the study. The Cronbach Alpha and composite reliability values scored above the threshold values. This study confirmed the adaptive performance instrument among the lecturers in Malaysia and can provide insight for future research. The limitation includes the sample of the study that was rather homogenous which it only focused on lecturers from Malaysian RUs.

Keywords: *Construct validity, adaptive performance, lecturers*

1. Introduction

Volatility, uncertainty, complexity, and ambiguity (VUCA) are the situations that label change as constant and unpredictable change as a norm. In the higher education industry, the gain of the virtual mode of the classroom that changes from the traditional education model poses challenges to educators. (Jimoh & Adenekan, 2024; Shoaib et al., 2022) especially the inability to cope with the adaption of educational technologies (UNESCO, 2021). The lecturer's ability to act adaptively and exhibit flexibility is clustered under adaptive performance which would lead to better performance in fluid and changing environments thus producing a higher job performance for an individual. (Ployhart & Bliese, 2006; Solberg, 2017).

Apart from the changing structure from the traditional approach to online teaching and learning, more work requires technological literacy such as web-based seminars, online-based research and development activities, and online training courses. In particular, those who exercise an outstanding performance during the changing environments are said to have a high adaptability whereas those who fail to do so are classified as having a low adaptability. Adaptive performance is theoretically defined as the act that displays the ability to organize and adapt to changes taking place as well as transferring learning from one duty to another due to various job demands. (Allworth & Hesketh, 1999; Griffin, Parker, & Mason, 2010).

To date, scholars such as Loughlin & Priyadarshini, 2021; Pratoom, 2021) Have carried out extensive studies in evaluating the conceptualization of adaptive performance due to its significance. Furthermore, Malaysian-based scholars (to name a few: Arshad and Malik, 2015; Shahidan, Azizan, Arifin, Abumandil and Arshad, 2021) Have focused on research studies that specifically focused on adaptive performance in the domestic context that empirically yielded different results in each context. Several scholars (Bakkaloglu, 2023; Pratoom, 2021) Argued that need for a study that further explains the conceptualization of adaptive performance particularly in the Malaysian context (Shahidan et al., 2021). Therefore, the aim of this study is to further clarify the construct validity and internal consistency of adaptive performance measurement specifically in terms of the local education sector.

2. Theoretical Background

Adaptive performance is not a new concept in the area of employees' work performance dimensions. Koopmans et al., (2011) Argued that due to increased complexity and uncertainties in the work environment, adaptive performance is no longer acceptable to be grouped under task performance, contextual performance, and counterproductive behavior. Notably, adaptive performance is an extended dimension of performance (Borman & Motowidlo, 1993; Carpini, Parker, & Griffin, 2017) and the dimension has been explored and investigated empirically in many studies across various industries and contexts. The conceptualizations of adaptive performance have been associated with various elements including its relationship to adaptive expertise (Stokes, Schneider, & Lyons, 2010), as an outcome of task performance (Carbonell, Stalmeijer, Könings, Segers, & van Merriënboer, 2014), individual difference construct (Ployhart & Bliese, 2006), capability to deal with changes and to transfer learning from one duty to another (Allworth & Hesketh, 1999), employees' degree to adapt, respond and support changes by proactive, reactive, and tolerant behaviors (Griffin, Neal, & Parker, 2007) and employees exhibit adaptive performance by altering their actions based on the needs regarding situations and changes taking place at the workplace (Charbonnier-Voirin, El Akremi, & Vandenberghe, 2010). The difference in adaptive performance's conceptualization has produced many viewpoints on the concept itself which require further empirical support empirically.

Furthermore, adaptive performance has become more prominent in its field to this end, the studies conducted on adaptive performance area have increased two-fold from the year 2005 to 2015 (Carpini et al., 2017). These studies involved various contexts such as the hotel industry. (Allworth & Hesketh, 1999), manufacturing industry (Pradhan, Jena, & Singh, 2017), health industry (Green, Dishop, & Aarons, 2016; Shahidan et al., 2021) And many more. Available studies on adaptive performance are found to have a limited scope in certain contexts; thus, it is crucial to further discover the conceptualization of adaptive performance as it occurs in various cultures and work settings. Further validation demonstrates that there is a rising need to recognize the significance of adaptive performance since technological intervention in the education industry has led to the need for more agile lecturers, particularly in higher learning institutions.

In an attempt to extend the literature on adaptive performance, Pulakos et al., (2002) Introduced eight taxonomies of adaptive performance which consist of 68 items known as Job Adaptability Inventory (JAI) that is used to assess adaptive behavior. The taxonomies are: (1) handling emergencies or crises; (2) handling work stress; (3) solving problems creatively; (4) dealing with uncertain and unpredictable work situations; (5) learning work tasks, technologies, and procedures; (6) demonstrating interpersonal adaptability; (7) demonstrating cultural adaptability; and (8) demonstrating physically-oriented adaptability. Following this, Griffin & Hesketh (2005) Reduced JAI to between 18 to 20 items.

In acknowledging the increasing attention on adaptive performance conceptualization, Charbonnier-Voirin & Roussel (2012) Discussed the importance of employing a multidimensional scale to further understand the dimension of individual adaptive behavior across various settings. This has resulted in a multidimensional scale of adaptive performance, which can be used in diverse contexts and consists of a 19-item scale measuring its five dimensions, namely: (1) creativity, (2) reactivity in the face of emergencies, (3) interpersonal adaptability, (4) training effort, and (5) handling work stress (Charbonnier-Voirin & Roussel, 2012). Although many scholars have noted the importance of understanding how employees behave adaptively through multidimensional constructs proposed, the clarity and consistencies of adaptive performance remain lacking (Park & Park, 2019; Pratoom, 2021).

Despite the diverse manners employed in adaptive performance, the current study will hold onto the definition that employees should adjust their actions in response to new or shifting environments and situations. Hence, the current study will utilize the measurement of the adaptive performance construct that has been proposed by Charbonnier-Voirin and Roussel (2012) with a specific focus on the Malaysian lecturers' context. Additionally, there have been studies on adaptive performance conducted in the Malaysian context, for instance, studies by Guan, Amalia Madihie (2014) Shahidan et al. (2021) acknowledged the significance of adaptive performance from a Malaysian perspective. Nonetheless, these studies were limited to their specific contexts thus there is a need for more studies to be conducted on adaptive performance. Empirical evidences show that the need for adaptive performance studies has grown and there is also a need for further

clarification on the development of its construct to be applied in the local context. Hence, it is worth further research to validate the multidimensional scale of adaptive performance in Malaysia, specifically among the lecturers in public higher learning institutions.

3. Methodology

This study used individuals as the unit of analysis and the data gathered were for a one-off. The data were collected from five Malaysian RUs located in the north, south, and east of Malaysia. Furthermore, a simple random sampling technique was employed for the data collection process and a survey questionnaire was designed using Goole Form and distributed to the respondents via their respective institution's official email. The measurement of the adaptive performance construct was adopted using the scale proposed by Charbonnier-Voirin and Roussel (2012). The construct consists of five dimensions namely creativity, reactivity, interpersonal adaptability, training effort and handling work stress. The adaptive performance construct was measured using 19 items via a seven-point Likert scale.

Then, Statistical Package for Social Science (SPSS) version 26 was employed to undertake a statistical analysis, particularly for preliminary data analysis which involved the process of detecting and improving errors in the data file. The process included identifying blank responses, straight-line responses, outliers, and descriptive analysis. Next, the Partial Least Square approach was adopted to find the measurement model analysis.

Specifically, SmartPLS version 3.3 software was employed for identifying the measurement model analysis which included the analysis of convergent validity and internal consistency reliability. The higher-order construct in PLS-SEM was adopted to increase parsimony. (Sarstedt, Hair, Cheah, Becker, & Ringle, 2019). The convergent validity analyses encompassed the outer loading with a threshold value of 0.4 and above. (Hair, Ringle, & Sarstedt, 2011) and AVE with a threshold value of 0.5 and above (Bagozzi & Yi, 1988). The construct must surpass the recommended satisfactorily convergent validity then the process to identify internal consistency analysis will take place. Internal consistency analyses involved Cronbach alpha value and composite reliability. The threshold values for Cronbach alpha were between 0.8 - 0.9 (Nunally & Bernstein, 1978) and for composite reliability was 0.7 and above (Hair, 2018).

4. Results

Demographic Profile
The data were collected from lecturers at Malaysian research universities via email with the attachment of the Google Form link for the survey. A total of 1,600 questionnaires were emailed and the response rate of this survey was 12.9% with 197 responses. After the preliminary data were analyzed, the usable questionnaires were 196 responses of which male respondents represented 38.8% while female respondents were represented by 61.2%. In terms of age, 46 respondents (23.5%) were between 31 and 40 years old, and 63 respondents (32.1%) were between 41 and 50 years old. A majority of the respondents were PhD holders with 179 respondents (91.3%) while 14 respondents (7.1%) had a Master's Degree and the remaining respondents 1.5% were Certificate holders. Besides, most of the respondents (48%) had been working with their present institution for more than 15 years, while 20.4% had been working for less than 5 years.

Analysis
Figure 1 illustrates the model of adaptive performance construct together with lower order indicators, indicating convergent validity assessment such as outer loading and AVE not surpassing the satisfactory threshold. Although the outer weight for items in lower order construct showed less than 0.4, the AVE scored for the lower higher order or the dimensions of adaptive performance are more than the threshold values of 0.5. However, the AVE for adaptive performance is 0.432 implying the construct is convergently invalid, which requires further deletion of items. Thus, the figure illustrates the model of adaptive performance after the deletion of seven items (refer to Table 1).

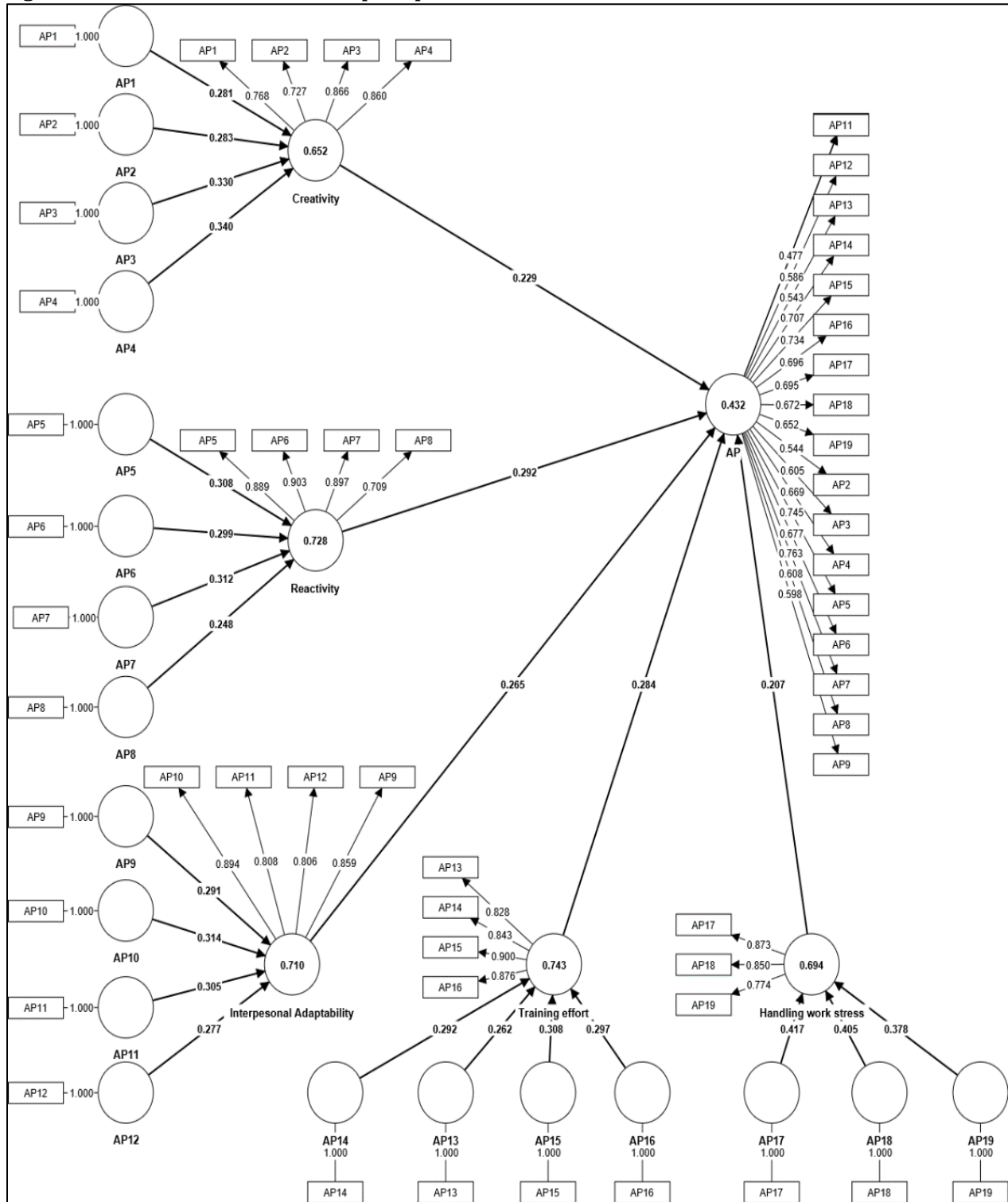**Figure 1: Measurement model of Adaptive performance construct**

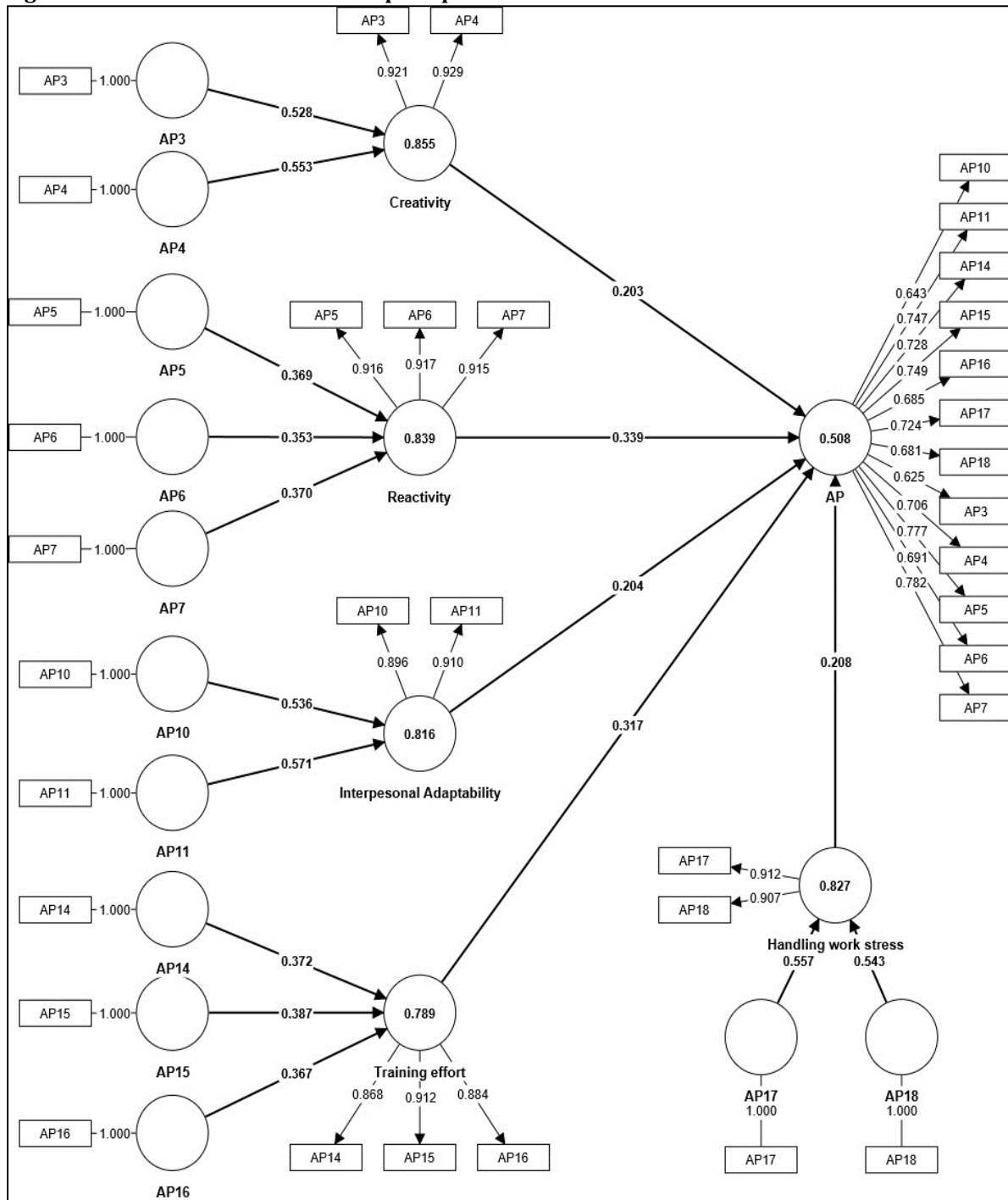**Figure 2: Measurement model of Adaptive performance after deletion of items**

Table 1: Deleted Items for second order

Construct	Items		weight
Adaptive Performance	AP1	I do not hesitate to go against established ideas and propose an innovative solution.	0.281
	AP2	Within my department, people rely on me to suggest new solutions.	0.283
	AP8	I can easily reorganize my work to adapt to new circumstances.	0.248
	AP9	Developing good relationships with all my counterparts is an important factor in my effectiveness.	0.291
	AP12	I willingly adapt my behavior whenever I need to work well with others	0.277
	AP13	I undergo training regularly at or outside of work to keep my competencies up to date.	0.262
	AP19	My colleagues ask for my advice regularly when situations are difficult because of my self-control.	0.378

Table 2: Factor Loading for Adaptive Performance Construct

Items	Construct	Lower order	Higher order
Adaptive performance Dimension			
Creativity			0.203
AP3	I use a variety of sources/types of information to come up with an innovative solution.	0.528	
AP4	I can develop new tools and methods to resolve new problems.	0.553	
Reactivity			0.339
AP5	I can achieve total focus on the situation to act quickly.	0.369	
AP6	I can quickly decide on the actions to take to resolve problems.	0.353	
AP7	I can analyze possible solutions and their ramifications quickly to select the most appropriate one.	0.370	
Interpersonal Adaptability			0.204
AP10	I try to understand the viewpoints of my counterparts to improve my interaction with them.	0.536	
AP11	I learn new ways to do my job better to collaborate with other people.	0.571	
Training Effort			0.317
AP14	I am on the lookout for the latest innovations in my job to improve the way I work.	0.372	
AP15	I look for every opportunity that enables me to improve my performance (training, group projects, exchanges with colleagues, etc.).	0.387	
AP16	I prepare for change by participating in every project or assignment that enables me to do so.	0.367	
Handling Work Stress			0.208
AP17	I keep my cool in situations where I am required to make many decisions.	0.557	
AP18	I look for solutions by having a calm discussion with colleagues.	0.543	

In the second-order analysis, the value of AVE scored for adaptive performance construct is 0.508 with a Cronbach alpha value of 0.913 and composite reliability value of 0.926. Cronbach alpha value and the composite reliability value are less than 0.95 indicating that there are no items are redundant (Diamantopoulos, Sarstedt, Fuchs, Wilczynski, & Kaiser, 2012) which resulted in a satisfactory result for the adaptive performance construct validity.

Table 3: Summary of Measurement Model Assessment of Adaptive Performance Construct

Construct	Cronbach Alpha	Composite reliability	AVE
Adaptive Performance	0.913	0.926	0.508

5. Conclusion and Discussion

As adaptive performance is a vital construct for employees regardless of their disciplines, it entails further investigations (Park & Park, 2019; Shahidan et al., 2021), especially in the higher education sector in Malaysia. The present study was carried out as an attempt to ascertain the validity and reliability of adaptive performance construct using the PLS method, specifically through the measurement model assessment. The assessment includes convergent validity analysis where the value of outer weight and AVE were identified and reliability analyses involving Cronbach alpha value and composite reliability were carried out. The result found that it was conclusively identified that good internal consistency was observed for the variables measured in the specific scope of this study, namely adaptive performance.

It is generally recognized that studies on adaptive performance have been focusing on specific sectors, thus it is crucial to further discover more related insights in the Malaysian context through the utilization of multi-scale instruments following the idea proposed by Charbonnier-Voirin and Roussel (2012). The reliability and validity tests are vital in the development of a questionnaire as they ensure the meaningfulness and functions represented by each item and construct, which subsequently would contribute towards the overall comprehensiveness of the research framework. In the present study, it was found that the instrument possesses good validity and consistency. In addition, more analyses including on the factors that influence adaptive performance should be carried out to specifically ascertain its relationship in the Malaysian context.

The present study utilized the SmartPLS software as the statistical tool, it contributes to the body of knowledge specifically on the construct validity of adaptive performance in the Malaysian context. In addition, the present study also contributes theoretically to the growth of testing on adaptive performance constructs from various contexts about Malaysian lecturers. In the long haul, this study is anticipated to arouse interest among future researchers to further discover adaptive performance from other perspectives.

Limitation and Future Research
Even though there are several important insights covered by the present study on adaptive performance, there is a limitation that needs to be highlighted. Specifically, the limitation is on the sample for the present study which was rather homogenous involving lecturers servicing at Malaysian RUs which are public higher learning institutions. Therefore, it is suggested that future researchers may expand the usefulness of the instrument by involving lecturers from both public and private higher learning institutions in Malaysia. Additionally, future researchers are recommended to conduct a post-data collection study in the endemic phase as there will be possibilities that different results might be obtained.

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