

# WORK-RELATED ICT USE OUTSIDE WORK HOURS, WORK-FAMILY CONFLICT AND WORK-FAMILY ENRICHMENT CONSTRUCT AMONG MANAGEMENT OFFICERS AND PROFESSIONAL NON-ACADEMICS: A PILOT STUDY

Azimah Ahmad<sup>1</sup>  
Mohd Nazri Zakaria<sup>2</sup>

<sup>1</sup>Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan (UMK), Malaysia,  
(E-mail: azimah\_a@ymail.com)

<sup>2</sup>Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan (UMK), Malaysia,  
(E-mail: mnazri.z@umk.edu.my)

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**Abstract:** *Work-related ICT use outside work hours has been a profound influence on employee's work and family lives. However, within the context of Malaysia, there is a lack of study to directly test the impact of work-related ICT use outside work hours on perceptions of work-family outcomes. Therefore, this research aims to discuss the pilot test process on a proposed research model before primary research. A pilot study was conducted to assess the usability and reliability of the survey questionnaire. An online survey method was used to collect 102 data from Public Institutions of higher education (PIHE) in Malaysia. The results agreed that most of the constructs in the proposed model have Cronbach alpha ranges from 0.703 to 0.940, which indicates the constructs have good reliability. Therefore, the constructs in the questionnaire are acceptable for future research on a bigger scale. The result provides valuable information to the Malaysian context on factors that could affect work-family conflict and work-family enrichment and further outcome of the work-family balance. In order to contribute to the body of research in this context, the researchers describe the pilot test process and methodology before the actual data collection. Thus, a pilot study is necessary and useful in providing the groundwork in a research project.*

**Keywords:** *Pilot Study; Work-Family Conflict; Work-Family Enrichment; Work-Family Balance; Public Institutions of higher education*

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## Introduction

In the current modern working environment, technology plays a crucial role in working life. The advancement of information technologies, the expansion of communication apps, and the availability of smartphones, computers, and internet access have allowed employees to stay connected to work even after working hours [Biron and van Veldhoven, 2016; Gadeyne, Verbruggen, Delanoeije, & De Cooman, 2018]. One survey in the UK shows that over a quarter of public sector workers and a third of private sector workers reported that technology causes them to work longer hours that affect their quality time with family and work-family balance [Filcher, 2015]. In Malaysia, 90.4% of government employee are struggling with work stress [Abdul Jalil, Mohamad Fauzi dan Nordin, 2017]. However, since the COVID-19 pandemic, a global study by Oracle and Workplace Intelligence [Ming Teoh, 2021] revealed 70% of people having more stress at work in balancing work demands and home responsibilities. Past studies have reported that the managerial and professionals are the group routinely take their work during their personal time and exposed to work longer hours [Currie & Eveline, 2011; Fenner & Renn, 2010; Senarathne Tennakoon, da Silveira, & Taras, 2013]. It has conclusively been shown that managerial position tend to report higher levels of work-nonwork interference than lower-level staff employees [Boswell & Olson-Buchanan, 2007; Schieman, Milkie, & Glavin, 2009].

Furthermore, previous researches highlighted that studying work-family balance is important and needs to emphasized in both on work-family conflict and work-family enrichment [Bansal & Agarwal, 2020; G. Kreiner, Hollensbe, & Sheep, 2009; Siti khadijah & Siti aisyah, 2017]. Technological and competitive trends construct the boundaries between work dan family life and increasing workload that affect work-family balance (G. Kreiner et al., 2009; Nam, 2014). Thus, the nature of ICTs has changed the work practices into work and off-work time, and employees get to organize their work with greater flexibility, with many work roles becoming virtually boundaryless [Bliese et al., 2017; Colbert, Yee, & George, 2016]. Therefore, this study is to get more insight into the effects of work-related ICT use outside work hours on both work and family.

## Literature Review

The term of work-life interface proposed by Bansal & Agarwal (2020) in three different aspects includes negative aspect (conflict), positive aspects (enrichment), and integrative aspect (balance). The following section describes the existing literature of the key constructs of study in detail.

First, the term work-family balance has been inconsistently defined in the work-family literature. Historically, researchers view work-family balance as the absence of work-family conflict, or the frequency and intensity in which work interfere with family or family interfere with work (Greenhaus & Beutell, 1985). However, most definitions of work-family balance focused on individual perceptions rather than associated outcomes with balance on the adult's lived experience of the work-family interface (Frone, 2003; Voydanoff, 2005, Greenhaus & Allen. 2006; Valcour, 2007). Grzywacz and Carlson (2007) definitions are more inclusive in perceiving the balance and preferences of an individual. Grzywacz and Carlson (2007) defined work-family balance as an 'accomplishment of role-related expectations that are negotiated and shared between an individual and his/her role-related expectations that are negotiated and shared between an individual and his/her role-related partners in the work and family domains' (p. 458). Therefore, work-family balance does not mean that an individual is a 'superstar' in

both the work and family domains. Rather, upholding mutually agreed upon responsibilities is, in essence, meeting the role's basic or core requirements; it does not necessitate high levels of effectiveness or performance.

Secondly, according to the role theory, the term “inter-role conflict” refers to challenges that arise between work and family roles and responsibilities. The work-life interface occurs when a person between the work role and personal or family roles becomes incompatible. Greenhaus and Beutell (1985) defined "work-family conflict as a specific form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (p.77). According to Carlson et al. (2000), there is classification work-family conflict dimensions: time-based conflict, strain-based conflict, and behaviour-based conflict. This view is supported by Greenhaus and Beutell (1985), who write that work-family conflicts are measured using these three common dimensions.

Thirdly, Work-Family Enrichment refers to the positive aspects of work, and family can benefit one another. As noted by Carlson et al. (2006) and Frone (2003), Work-family enrichment is conceptually and empirically different from work-family conflict. Both WFC and WFE, on the other hand, represent multiple dimensions that are made up of bidirectional relationships (i.e., work-to-family and family-to-work). Work-family-enrichment is defined as “the extent to which experiences in one role improve the quality of life, namely performance or affect, in the other role” (Greenhaus & Powell, 2006, p.73). Work-family enrichment has been identified as a multidimensional construct and has three dimensions that work to family and family to work (Carlson et al., 2006); it includes work to family development, work to family affect, and work-to-family capital.

To sum up, past studies have focused on the relationship between work-related ICT use outside work hours and adverse outcomes such as work-family conflict (Derks et al., 2016; Gadeyne et al., 2018; Yang et al., 2019), but there are inconsistent findings been reported. To further highlight these inconsistent findings, the previous study relates individual differences which would prefer separating work and personal life (i.e., integration preference) to work-related use of ICTs outside of work hours to have beneficial effects (Derks et al., 2016; Kreiner, 2006). However, most studies have only relied more on negative spillover than potential positive spillover from work to personal life that may result from work-related ICT use outside work hours. The present study addresses these gaps in the literature by examining the relationship between work-related ICT use outside work hours on work-family conflict (WFC) and work-family enrichment (WFE), on the one hand, and work-family balance, and does so with a sample of officers among non-academic employees of a public university in Malaysia.

### **Purpose of the Pilot Study**

The pilot study is a trial run of the entire study from start to finish, increasing the likelihood of success for the main research [Ruel, Wagner III, & Gillespie, 2016]. A pilot study can be defined as a small study to test research protocols, data collection instruments, sample recruitment strategies, and procedures to be used on a larger study [Stewart, 1999]. According to Saunders, Lewis, and Thornhill [2009], it is important for the researcher to apply a pilot study to improve the survey questionnaire before the researcher distributes the actual responses. Besides, a pilot study is one of the important stages in a research project and is conducted to identify potential problem areas and deficiencies in the research instruments and protocol before administering the full-scale study [Lancaster & Williamson, 2004; Kraemer, 2006]. The

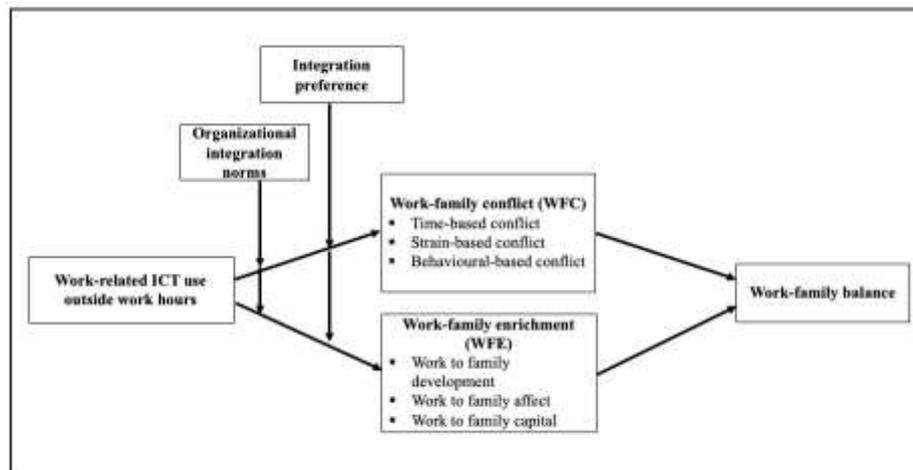
pilot study is also vital to distinguish whether the respondents could clearly understand the questionnaire and the instruction of the questionnaire. The purpose of conducting a pilot study are (a) determining the feasibility of the study protocol, (b) recruitment approaches, (c) testing the measurement instrument, and (d) determining data entry and analysis procedure [Ruel et al., 2016 and Teijlingen and Hundley, 2002]. There is strong support in past literature that a pilot study should be undertaken to identify future risks related to sample size, data collection method, sample selection, data management, and data analysis [Moore et., 2011].

This pilot study was carried out to fulfill the following objectives:

- To prepare a questionnaire by conveying the five main areas: work-related ICT use outside work hours, work-family conflict, work-family enrichment, work-family balance, and workplace integration preferences and supplies.
- To analyse the reliability and validity of the questions.

### **Methodology**

Based on the previous study researches reviewed, a framework is proposed, as depicted in Figure 1. This study uses the Boundary Theory [Ashforth et al., 2000] and role theory [Kahn et al., 1964]. This study uses the boundary theory as a framework for exploring work-related ICT use outside work hours and boundary preference to examine work-family conflict, work-family enrichment, and work-family balance. Following boundary theory, the capacity to transition from one domain to another when needed is a way to lessen conflict between roles, but it may also be a way to increase the benefit of multiple roles. Olson-Buchanan & Boswell [2006] added the theory that employees can create boundaries for ICTs use in the work domain for family purposes. Studies by Daniel & Sonnentag [2015] and Padhi & Pattnaik [2017] found that employees with integrated boundary strategy reported greater WFC and WFE. In addition, aligned with the role theory relates to flexible expanding work and family roles, and suggested that work-family balance relate to not restricting the number of roles but engaging in multiple roles. The research framework below consists of one independent variable (work-related ICT use outside work hours) that may impact work-family conflict and work-family enrichment. Further, work-family conflict and work-family enrichment may influence work-family balance. Work-family balance is the outcome of the proposed framework. Integration preference and organizational integration norms are added as moderators. Integration preference and organizational integration norms are proposed to moderate the relationship between work-related ICT use outside work hours and work-family conflict and work-family enrichment. Therefore, there are six (6) constructs in the proposed research framework below.



**Figure 1: Research Framework**

In this pilot study, the sampling of the respondent is based on stratified sampling. The stratified sampling method was chosen as the selection of respondents involves a process of stratification, followed by random selection from each stratum [Sekaran & Bougie, 2016]. The population is first divided into mutually exclusive groups that are relevant, appropriate, and meaningful in the study context. The sample consists of non-Academic from public universities. Therefore, the samples for the pilot study were collected from public universities in Malaysia. The respondents were management officers and professionals from two selected public universities in the east coast region.

A pretest was conducted before proceeding with the pilot test. Pre-test is a step where a group of experts and respondents are required to answer the questionnaire to iron out issues in the instruments or design of the questionnaire [Zikmund et al., 2012]. Feedback from pretesting is helpful for the researcher to modify the questions of the survey to fit the actual respondents' understanding before administering the final version of the questionnaire to the target respondents and thus reducing biases [Sekaran and Bougie, 2016]. Pretest on the data collection instrument with two chosen academicians who are experts in the subject matter, one language expert, and two panel members were recruited to identify the problem with the data collection instruments. The content validity of the instrument was reviewed by a panel of expert in the field of Organizational Behavior and expert in the field of methodology. The face validity of the questionnaire used in this study were evaluated by panel members from the counseling and welfare unit in public university. Panel members were required to evaluate items and the instruments through online discussion. These experts gave their views and suggestions regarding to the contents of each of the dimensions and elements included in the questionnaire. Besides that, the time taken to complete the draft questionnaire by the employee was being timed by the researchers. Lastly, changes were made to the questionnaire based on their feedback. The pretest leads to some modifications in the questionnaire, such as unclear directions, inconsistent scale, order of response options, and clarify complex concepts. Items were revised according to the results from pre-test to improve content and face validity and reliability.

All the constructs were adapted and adopted from past literature. Section A: comprised of thirteen questions related to demographics information of respondents. While section B had three subsections related to work-related ICT use outside work hours. Section C is comprised

of 5 subsections that covers factors that influence work-family balance. The pilot study used a closed-ended question in the questionnaire. In a closed-ended questionnaire, respondents will give choices among a set of alternatives given by the researcher. All items in a questionnaire using a nominal, ordinal Likert, or interval scale are considered closed ended questions (Sekaran and Bougie, 2016). Closed ended questions help the respondents to make quick decisions to choose among the several alternatives given. It also helps the researcher to code the information easily for the data entry and data processing procedures.

The items in the section B and C used a seven-point Likert scale, where respondents indicated their frequency of usage from a scale of 1-7 (1=never and 7=always), and others construct related to the extent of agreement with a statement from a scale of 1-7 (1=strongly disagree and 7=strongly agree). There are items in subsection B will a five-point Likert scale, where respondents indicate their average minutes per day from a scale of 1-5 (1: 0 min; 2: 1–10 min; 3: 11–30 min; 4: 31–60 min; 5: +60 min). The items for each construct are as in Table 2. Four issues were considered when designing the questionnaire for the pilot study: (i) the appropriateness of the content of the questions to the targeted respondents, (ii) the sequencing of the questions, (iii) ordered of response options, and (iv) the clarity and unambiguity of items. Sekaran and Bougie (2016) suggested that the language and wording used in the questionnaire should be appropriate to the respondents' level of understanding.

The pilot test was conducted over a period of two weeks. First, e-mail attached with an online line (Google form) were sent to non-academic officers in two universities according to the list e-mail given by the registrar's office. An e-mail containing a link to the questionnaire can be sent to potential respondents. The online survey will be attached with a cover letter that includes details on the purpose of the study, eligibility of the respondents, and confidentiality assurance on their responses. After three days, a follow-up e-mail will be after the first e-mail, and continuous follow-up and an additional week until receive at least 100 pilot respondents. The respondent will answer by clicking on the link given and that it would take approximately 10 to 15 minutes to complete the questionnaire. During the pilot study, the researcher tested distributing the questionnaire through web-based survey to evaluate the e-mail was sent and received. The online survey received 112 responses and 10 questionnaires were discarded as it did not fulfill the preliminary requirements. Hence, potentially 102 responses were used for data analysis.

### **Results and Discussions**

The 102 data were analyzed using IBM-SPSS 25.0. A frequency test was used to analyse the information provided by the respondents. Most of the participants were mainly male (54.9%) while the female (45.1%). Most of the participants were in the age group of 31-37 years (51%) followed by 38-45 years (30.4%), 23-30 years (8.8%), 46-52 years (6.9%), and 53-60 years (2.9%). 74.5% of the respondents were from the Millennials generation group (1981-1996) while 25.5% were from Generation X (1965-1980). Most participants were married (86%), had a Bachelor' degree (81%), and had at least children under 18 years living in the household (80.4%).

**Table 1: Respondents Demographic Profile**

Variable	Category	Frequency	Percentage
Gender	Male	56	54.9
	Female	46	45.1
Age	23-30 years	9	8.8
	31-37 years	52	51
	38-45 years	31	30.4
	46-52 years	7	6.9
	53-60 years	3	2.9
Generation group	Millenials (1981-1996)	76	74.5
	Gen X (1965-1980)	26	25.5
Marital status	Single	14	13.7
	Married	86	84.3
	Divorced	2	2
Educational level	Bachelor's degree	81	79.4
	Master	16	15.7
	PhD	5	4.9
Presence of children (under 18 years old)	None	20	19.6
	1	16	15.7
	2	27	26.5
	3	23	22.5
	More than 4	16	15.7
Classification of services	B-Talent and Art	3	2.9
	C-Science	6	5.9
	D-Education	21	20.6
	F-Information System	11	10.8
	J-Engineering	4	3.9
	K-Security & Civil Defense	1	1.0
	N-Administration & Support	35	34.3
	Q-Research and Development	2	2.0
	S-Social	5	4.9
	U-Medical	6	5.9
	UD/UG-Medical/Dentist	1	1.0
W-Finance	7	6.9	
Position	Grade 41	50	49.0
	Grade 44	34	33.3
	Grade 48	9	8.8
	Grade 52	6	5.9
	Grade 54	3	2.9
Average work hours in a week	Less than 40hours	16	15.7
	40 hours	19	18.6
	41-49 hours	39	38.2
	50-59 hours	18	17.6
	More than 60 hours	19	18.6
Provision of ICTS	Yes	53	52
	No	49	48

The other half of participants worked in different classification of services with the majority from administration and support (34.3%), followed by education (20.6%), information system (10.8%), Finance (6.9%), medical (5.9%), Science (5.9%); the remaining 15.6% worked in other services. Most participants indicated the position level at Grade 41 (49%) and Grade (33.3%). The highest amount of work hours per week was 41-49 hours (38.3%), followed by 40 hours (18.6%), more than 60 hours (18.6%), 50-59hours (17.6%), and 15.7% less than 40hours. There are 52% of participants that employers provide with ICTs to perform work-related tasks outside regular work, and 48% indicated their employer did not provide the ICTs.

The online survey (Google form) was considered appropriate to collect data due to pandemic covid-19 from full-time employees who have the opportunity to electronically access work-related content or contact during non-work time in public higher education institutions. Participants response to the reminder emails indicated that it is crucial to follow the same step in larger data collection procedure later. The online survey indicated that all the questions could be completed in approximately ten to fifteen minutes. Therefore, it is assumed that the time to complete would be sufficient to complete response from participants. The unanswered questions were avoided as participants were not allowed to answer the next questions without answering in the online survey. This could further avoid missing data in the actual data study.

**Table 2: Measurement Items**

<b>Construct</b>	<b>Items</b>
Work-related ICT use outside work hours (Boswell & Olson-Buchanan, 2007; Gadeyne et al., 2018; Schieman;Glavin, 2008)	How often do you ICTs (Information and Communication Technology) to perform work outside of normal work hours in a week? (1) Smartphone (2) Personal computer (3) Laptop (4) Email (5) PDAs
	How often do coworkers, division head, senior assistant registrar, director, or clients contact you about work-related matters outside normal work hours using ICTs (Information and Communication Technology)? (1) Smartphone (2) Telephone (3) Email
	How many minutes per day you spent on work-related ICT use outside normal work hours using ICTs (Information and Communication Technology) (1) Smartphone (2) Personal computer (3) Laptop (4) Email (5) PDAs
ICT demands(Day, Paquet, Scott, & Hambley, 2012; Kao, Chi, Thomas, Lee, & Wang, 2020)	I am expected to be accessible at all times.
	Technology enables people I work with to contact me at any time.
	I am expected to check e-mails and/or voicemails when I am out of the office.
	I am contacted about work-related issues outside of regular work hours.
	I am expected to respond to e-mail messages immediately to my work colleague at home after work hours.

Integration preference (G. E. Kreiner, 2006)	<p>I don't like to have to think about work while I'm at home.</p> <p>I prefer to keep work life at work.</p> <p>I don't like work issues creeping into my home life.</p> <p>If I'm able, I like to leave work behind when I go home.</p>
Organization integration norms(G. E. Kreiner, 2006)	<p>My workplace lets people forget about work when they are at home.</p> <p>Where I work, people can keep work matters at work.</p> <p>At my workplace, people are able to prevent work issues from creeping into their home life.</p> <p>Where I work, people think they can leave work behind when they go home.</p>
Work-family conflict(Carlson, Kacmar, & Williams, 2000)	<p>My work keeps me from my family activities more than I would like.</p> <p>The time I must devote to my job keeps me from participating equally in household responsibilities and activities.</p> <p>I have to miss family activities due to the amount of time I must spend on work responsibilities.</p> <p>When I get home from work, I am often too frazzled to participate in family activities/ responsibilities.</p> <p>I am often so emotionally drained when I get home from work that it prevents me from contributing to my family.</p> <p>Due to all the pressures at work, sometimes when I come home, I am too stressed to do the things I enjoy.</p> <p>The problem-solving behaviors I use in my job are not effective in resolving problems at home.</p> <p>Behavior that is effective and necessary for me at work would be counterproductive at home.</p> <p>The behaviors I perform that make me effective at work do not help me to be a better</p>
Work family enrichment(Carlson, Kacmar, Wayne, & Grzywacz, 2006)	<p>My involvement in work helps me to understand different viewpoints and this help me be a better family member.</p> <p>My involvement in work helps me to gain knowledge and this help me be a better family member.</p> <p>My involvement in work helps me to acquire skills and this helps me be a better family member.</p> <p>My involvement in work puts me in a good mood and this helps me to be a better family member.</p> <p>My involvement in work makes me feel happy and this helps me be a better family member.</p> <p>My involvement in work makes me cheerful and this helps me be a better family member.</p> <p>My involvement in work helps me feel personally fulfilled and this helps me be a better family member.</p> <p>My involvement in work provides me with a sense of accomplishment and this helps me be a better family member.</p> <p>My involvement in work provides me with a sense of success and this helps me be a better family member.</p>

Work family balance (Grzywacz & Carlson, 2007)	I am able to negotiate and accomplish what is expected of me at work and in my family.
	I do a good job of meeting the role expectations of critical people in my work and family life.
	People who are close to me would say that I do a good job of balancing work and family.
	I am able to accomplish the expectations that my supervisors and my family have for me.
	My co-workers and members of my family would say that I am meeting their expectations.
	It is clear to me, based on feedback from co-workers and family members, that I am accomplishing both my work and family responsibilities.

**Source:** Already Mentioned Beside Each Item.

Hair et al. [2014] defined reliability as an evaluation of the degree of consistency between variables. The reliability of the pilot instrument of this study was estimated using the internal consistency reliability. The reliability analysis for each construct was measured by computing the value of Cronbach's Alpha. Cronbach's Alpha is the statistical method for testing construct's reliability in research. The acceptable level of alpha value is greater than 0.7, indicating that the question is used as a tool to measure variables [Sekaran and Bougie, 2016; Hair et al. 2018]. Most of the constructs in this study have Cronbach's alpha ranging from 0.703 to 0.98 (see Table 3). All constructs have Cronbach's alpha values above 0.7, which means that all constructs have good internal consistency. Thus, refining the items to increase the reliability of the measures was not required. From this result of Cronbach's alpha coefficient value, this questionnaire is strongly reliable and highly acceptable. Table 3 below shows the mean, standard deviation, and Cronbach alpha for all constructs.

**Table 3: Descriptive and Reliability Results**

Construct	Numbers of items	Mean	SD	Cronbach alpha
Work-related ICT use outside work hours	13	4.292	1.006	0.864
ICT demand	5	5.886	1.1849	0.888
Integration Preference	4	5.5196	1.3422	0.703
Organizational integration norms	4	4.081	1.4561	0.842
Work-family Conflict	9	3.5752	1.4848	0.940
Work-family Enrichment	9	5.4913	1.2969	0.980
Work-family balance	6	5.4984	1.1831	0.965

### Conclusion

The pilot study is required before conducting the main study on work-related ICT use outside work hours and work-family outcomes among Management Officers and Professional Non-Academics. The usability of the questionnaire as tested, and the positive response rate confirmed the reliability of the larger investigation in the future. Furthermore, the pilot study demonstrated that an online survey was conducive for data collection. The pilot testing shows a reasonable response rate, the reliability, and validity of the data. The positive response during the pilot study from participants confirmed that the instruments are suitable for the main study,

and this a potential important outcome. Finally, it was evident from this pilot study that in the work-related ICT use outside work hours, work-family conflict, and work-family conflict could be an effective research framework in accessing work-family balance. This paper highlights the value of pilot study in term of improved research design and provide an instrument for the Malaysian context.

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