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Abstract

The purpose of this study was to empirically test the Malaysian Technical and Vocational Education Training (TVET) Graduates' Job Performance inventory. The study involved 287 respondents consisting of job supervisors of the TVET graduates. They were required to respond to a 5-point Likert scale questionnaire. The inventory originally consisted of 29 items with two sub-scales; task performance and contextual performance. An exploratory factor analysis was conducted which suggested a three-dimensional construct for the instrument with high measures of reliability. The data were further analyzed using confirmatory factor analysis. The revised measurement model supported the adequacy of a three-factor measures with each indicator rendered statistically and practically significant loading. The factors were moderately correlated with each others. Divergent validity and convergent validity were supported. Thus, the three-factor model that represents Malaysian TVET Graduates Job Performance inventory is construct-valid. The practical implications of the findings are discussed.

1. INTRODUCTION

Much research has been done to determine the dimensions contributing to job performance. Several dimensions have been identified as the factors affecting job performance such as transformational leadership (Podsakoff et al., 2000; Purvanova et al., 2006; Christian et al., 2011), organizational justice (Greenberg, 1982; Devonish and Greenidge, 2010; Wang et al., 2010), work engagement (Rich et al., 2010; Schaufeli et al., 2002; Christian et al., 2011) and public service motivation (Brewer et al., 2000; Leisink and Steijn, 2009; Kim, 2006). These are external factors influencing job performance. Instead, Borman and Motowidlo (1993) were looking into job performance from the work behavior perspectives.

Borman and Motowidlo (1993) identifies two (2) types of employee behavior that contributes to the organizational effectiveness; task performance and contextual

performance. Task performance is defined as the effectiveness of a personnel performing work activities that contribute to the organization's technical core (Borman and Motowidlo, 1997). Whereas, contextual performance is the performance that is not formally required as part of the job but helps in shaping the social and psychological context of the organization (Borman and Motowidlo, 1993). In short, task performance is oriented towards goal achievement and contextual performance emphasizes on promoting morale and showing personal concern (Conway, 1999). Conway (1999) further categorized task performance in two (2) categories; technical-administrative task performance and leadership task performance. Technical-administrative task performance refers to all non-leadership oriented tasks such as paperwork, organizing, planning, quality of output and business judgment. While leadership task performance involves human relations and people management including motivating, supervising and evaluating subordinates.

According to Griffin et al. (2000), task performance and contextual performance can be distinguished and leads to job performance effectiveness. They argued that task performance is more important in determining effectiveness. People with high attributions of task performance will perform better than that with high attributions of contextual performance. Several studies proved that task performance and contextual performance influence managerial decision. According to Motowidlo and Scotter (1994), performance is judged by supervisors as a two-dimensional attribute. Both attributes have different behavior and antecedents. It contributes independently to supervisors judgment about an individual overall performance. Befort and Hatrup (2003) validated that managerial experience was positively related to perceptions of the importance of contextual performance behaviors reflecting compliance and extra effort. Whereas managers who performed more supervisory activities valued task performance more than did those who were less involved in supervision. It shapes the organizational, social, and psychological contexts serving as the critical catalyst for task activities and processes (Werner, 2000).

Most research was conducted in the area of validating task performance and contextual performance effects towards job performance effectiveness. Not much studies was done at the level of practical students undergoing practical training at work places using the instrument developed by Tett et al. (2003) in the Malaysian context. Therefore, the aim of this study is to empirically test the Malaysian Technical and Vocational Education Training (TVET) Graduates' Job Performance inventory based on the instrument developed by Tett et al. (2003). The inventory was predicted to be a three (3) – dimensional construct consists of technical – administrative task performance, leadership task performance and contextual performance that will influence job performance (Figure 1).

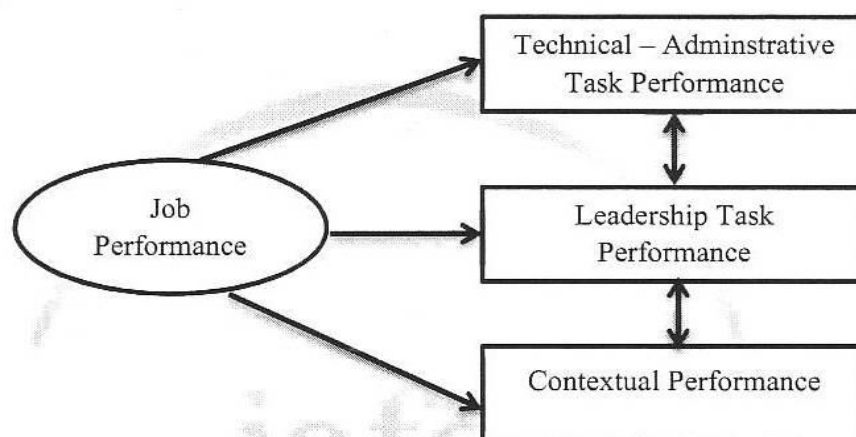


Figure 1: Conceptual Framework (Source: Author)

2. METHODOLOGY

2.1 Sample

The stratified random sampling technique was used to choose the study sample, collecting a total of 287 respondents. The respondents were job supervisors of the TEVT graduates from various organizations; multi-national companies (29%), public listed companies (23%), government-linked companies (13%), small and medium enterprises (8%), government agencies (9%) and others (18%). From the sample, 72.8% of the job supervisors were males and 27.2% were females ranging from 21 to 65 years old. The samples were divided into two (2); data from 85 samples were used for exploratory factor analysis and the remaining, 202 samples were used for confirmatory factor analysis.

2.2 Instrumentation

A set of instruments consisting demographics information and work behaviors as the Malaysian TVET Graduates' Job Performance inventory was administered to the job supervisors. Respondents were asked to rate them using 5 – point Likert scale ranging from 1 ("Never") to 5 ("Always"). The TVET Graduates Job Performance The demographic information of the respondents includes name of organization, location,

type of organization and supervisors background. The Inventory consists of 29 items, adopted and adapted from Tett et al. (2003). 18 of its item measure task performance and 11 of its item measure contextual performance.

3. RESULTS

The data were analyzed using SPSS 21 and Amos Graphics 21 and the instrument was empirically tested by exploratory and confirmatory factor analysis. The first stage of the data analysis was done using an exploratory factor analysis (EFA) to identify the factor structure of the Malaysian TVET Graduates' Job Performance. The second part of the data analysis was employed with confirmatory factor analysis (CFA) to confirm the factor structure.

3.1 Exploratory Factor Analysis (EFA)

An exploratory factor analysis (EFA) was conducted prior to the confirmatory factor analysis. EFA was run because the instrument was developed based on the literature that job performance consists of two (2) – dimensional construct. Further reading revealed that job performance consists of three (3) – dimensional construct. The principal component analysis (PCA) was used to explore the underlying constructs among job performance items.

The Kaiser-Meyer-Olkin measure was .861. In addition, Bartlett's test of sphericity was significant ($\chi^2 = 2701.821$, $p = .000$), which indicated that the correlation matrix was not an identity matrix. These results suggested that factor analysis was appropriate and the sample size was sufficient for meaningful factorability (Pett et al., 2003; Kaiser, 1960). The choices of PCA and Varimax rotation were made based on the exploratory nature of this study and the low correlation among latent factors (Pett et al., 2003). The number of factors was based on the analysis of Kaiser Normalization criteria (Pett et al., 2003), scree plots, and theoretical frameworks in the related research (Borman and Motowidlo, 1997; Borman and Motowidlo, 1993; Conway, 1999). Each of the three (3) factors had eigenvalues greater than 1. The three (3) factors accounted for 74.806% of the total variance explained. The high item-total correlations (.429–.874) indicated that all of the items related to the overall phenomenon. The three (3) factors and their factor loadings are detailed in Table 1 and consisted of the following:

- i. *Leadership – task Performance* consisted of ten (10) items that accounted for 66.016% of the total variance explained in the sample.
- ii. *Technical – administrative task performance* included nine (9) items and accounted for 5.065% of the total variance explained in the sample.
- iii. *Contextual performance* consisted of four (4) items that accounted for 3.275% of the total variance explained in the sample.

Table 1. Three Latent Factors Related to Job Performance Through Factor Analysis

Latent Factor and Constituent	Factor Loading Alpha	<i>M/SD</i>	
Factor 1: Leadership – task performance		3.83/.6823	.968
Communicates clearly and effectively	.822		
Comes to work on time	.788		
Completes work assignments	.784		
Has the ability to work independently	.772		
Has the ability to grow in the job	.746		
Meets deadlines	.745		
Works well with little supervision	.704		
Takes the initiatives in solving job-related problems	.696		
Does not hesitate in making decisions	.650		
Undertakes routine duties with energy and optimism	.636		
Factor 2: Technical – administrative task performance		3.77/.5692	.936
Plans the steps need to complete tasks	.719		
Able to seek information related to his/her job	.700		
Monitors current work unit progress	.675		
Works well under pressure	.661		
Has technical knowledge	.656		
Identifies work-related problems	.648		
Clearly specifies to others what needs to be done	.645		
Inspire others to achieve company goals	.640		
Complies with instructions, even if he or she disagrees with them	.620		
Factor 3: Contextual performance		3.75/0.6764	.930
Stay late to complete a job if necessary		.802	
Openly demonstrate public support for the company		.799	
Volunteers for extra assignments / tasks		.693	
Offers ideas for improving the work unit or organization		.678	
Defends supervisor decisions		.639	

The internal consistency reliability of the observed item questionnaire was examined using Cronbach's alpha. The resulting alpha values ranged from .968-.930 which were very high and above the threshold value.

3.2 Confirmatory Factor Analysis (CFA)

3.2.1 The Hypothesized Model

A confirmatory factor analysis was conducted to empirically test the instrument. Local goodness-of-fit indexes evaluate the measurement model. The goodness-of-fit measurements used included: chi-square index, critical ratio, Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA).

CFI compares a proposed model with the null measures. CFI values close to 1 are generally accepted as being indications of well-fitting models (Raykov and Marcoulides, 2000). A CFI value greater than 0.90 indicates an acceptable fit to the data (Bentler,

1992), values of 0.80 and greater indicate a fair fit (Browne & Cudeck, 1993; Byrne, 2010; Hu & Bentler, 1999). Higher values indicate a better fitting model.

The RMSEA is an index used to assess the residuals. It adjusts the parsimony in the model and is relatively insensitive to sample size. RMSEA values <0.05 indicate a good fit, and values up to 0.08 are acceptable if the other fit indexes are high (Byrne, 2010).

A smaller, non-significant chi-square index and critical ratio scores lower than 1.96 indicate a good fit (Byrne, 2010).

The hypothesized 3-factor measurement model was empirically tested using confirmatory factor analysis with AMOS (version 21) to assess the factorial validity of the measurement model. Items for each scale are assumed to load on their respective latent variables as shown in Figure 2. F1 represents leadership – task performance, F2 represent technical – administrative task performance and F3 represents contextual performance. The fit statistics showed that the model did not fit the data ($\chi^2/df = 3.37$; CFI = .865; RMSEA = .109). The results also suggest for a revision of the model since there were many cross-loaded indicators, some of which showed big error variances (Byrne, 2010).

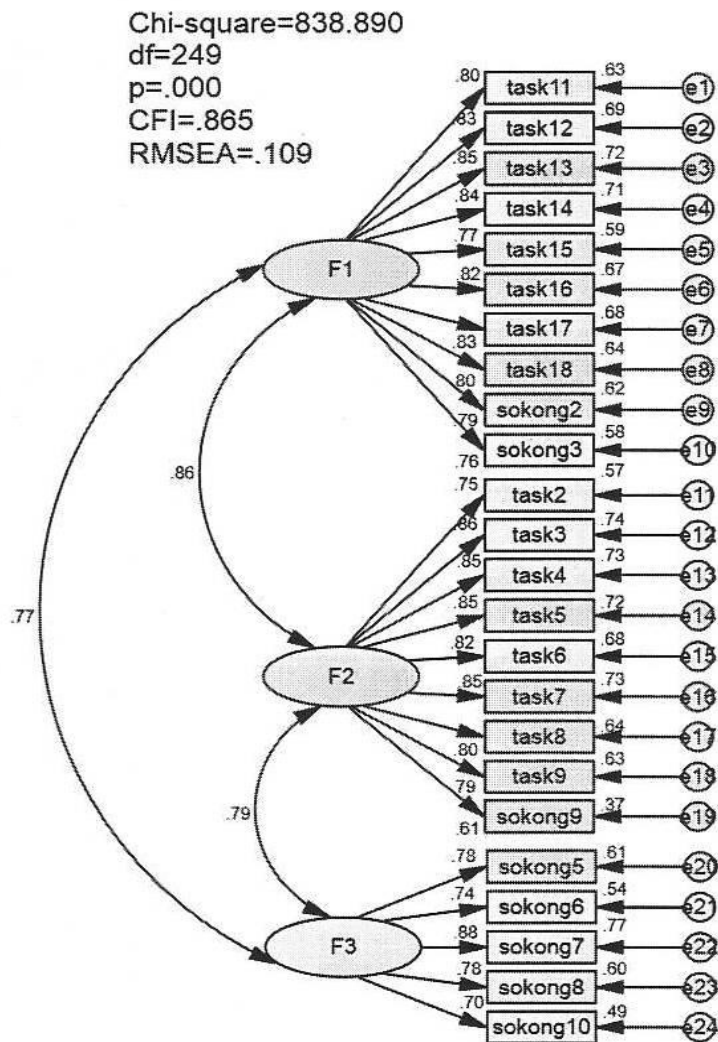


Figure 2: Malaysian Technical and Vocational Education Training (TVET) Graduates' Job Performance inventory.

3.2.2 The Revised Model

Figure 3 presents the revised 17-item three-factor measurement model analyzed by performing CFA.

This revised model was consistent with the data ($\chi^2(116) = 228.604$, $p = .000$; CFI = .958, RMSEA = .069). The direction and magnitude of the factor loading were substantial and statistically significant (Byrne, 2010). The model is free from offending estimates, and the internal consistency estimates satisfied the standard deemed necessary in scale construction. The Cronbach's alphas for the sub-constructs were .921 (leadership-task performance), .938 (technical-administrative task performance), and .858 (contextual performance).

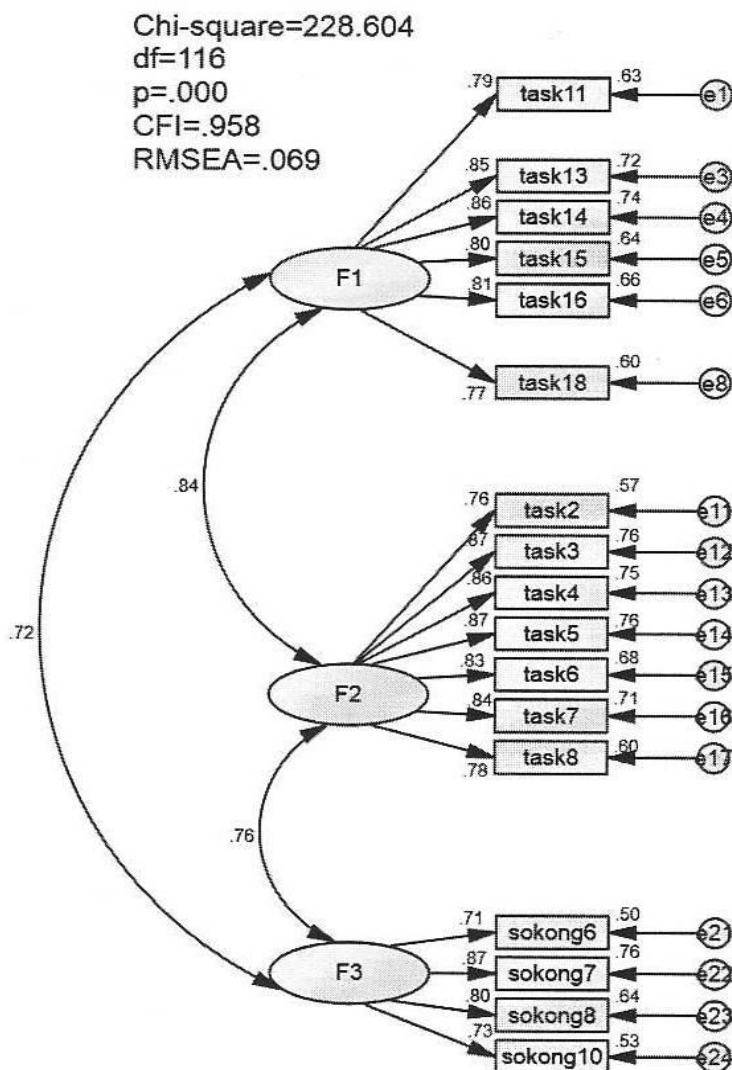


Figure 3: The Revised Model

4. DISCUSSIONS

This study is conducted to assess the reliability and validity of the Malaysian TVET Graduates' Job Performance inventory by applying both exploratory and confirmatory factor analysis. The results of the EFA and CFA supported the literature by that Conway (1999) that job performance is a three – dimensional construct being leadership – task performance, technical – administrative task performance and contextual performance. Leadership – task performance is being represented by six (6) factors. Technical – administrative task performance consisted of seven (7) items and contextual performance is being represented by four (4) factors.

The findings of this study met the earlier expectations that the prevalence of distinct but somewhat interrelated, the dimensions of the job performance. The correlations among constructs can be considered high. The correlation between leadership – task performance and technical – administrative task performance is high due to the fact that there are measuring task performance. The correlation between task performance and contextual performance can also be considered high supporting the previous literature that both performances are much like the similar but measuring different attributes.

This study has implications for educational practices especially in assessing technical and vocational graduates job performances. Since the three-dimensional construct yields a valid and reliable measurement model, the job performance scale is, therefore, useful in conducting diagnostic assessment of the job performance of the technical and vocational graduates before placing them at the work place.

It was supported by previous literature that supervisor's preferences were being influenced by the attributes of the workers. At some extent, supervisors preferred workers with high attributes of task performance and vice versa. Thus, it is important to identify those attributes before placing them at the work place.

5. FUTURE RESEARCH

The study should be extended to a broader group of technical and vocational graduates from the Malaysian Education System. The high correlations between constructs denotes that the model could be extended to second-order model. Invariance analysis should be performed across gender and demographic location to empirically test the configural validity of the instrument.

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