

The Impact of Electronic Human Resource Management on Organizational Performance Validating The Constructs of Employees' Competence Model Trough by Used Confirmatory Factor Analysis The Case Study (Greater Amman Municipality Employees)

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Abstract

In this paper, the importance of confirmatory factor analysis in the study is highlighted this is in order to evaluate the suitability of the measurement model by conducting structural equation modeling. This research contains three main variables and five components, which are, organization performance and competitive advantage, electronic human resources management the five components it e-Recruitment,e-Selection,e-Training ,e-Learning,e-Compensation. Prior to modelling the structural model and executing Structural Equation Modeling (SEM), the study needs to validate all measurement models of latent constructs for Uni-dimensionality, Validity, and Reliability. This validation procedure is called Confirmatory Factor Analysis (CFA). CFA is one type of analytical factor and is used to test the consistency of the scale's construction with the researcher's understanding of the nature of this study. It is more efficient with the use of Convergent Validity, Discriminant Validity and Composite Reliability in the study analysis for the researcher to apply the result for further steps.

Keywords: Electronic Human Resources Management, Compleitive Advantage, Organizational Performance, Confirmatory Factor Analysis.

Introduction

The study aimed to find out the impact of electronic human resource management practices on organization's performance in Greater Amman Municipality. The study sample was selected from the Greater Amman Municipality employees. The study used analytical descriptive methodology.

This research contains three main variables and five components, which are, organization performance and competitive advantage, electronic human resources management the five components it e-Recruitment,e-Selection,e-Training ,e-Learning,e-Compensation.

A simple random sampling was used. The study sample consisted of 243 Employees. A self-administrated questionnaire was designed according to research objectives and hypotheses. The questionnaire was validated before distribution to collect data.

Literature Review

Organizational Performance

To gain sustainability of organization performance, it is achievable by both short term and long term measurable outcomes. These outcomes include financial, human/social and environmental outcomes. Anyhow, the focus should be the ways these outcomes contribute to the long-term economic survival and adaptation of the organization. Theeboom, et al., (2014) conducted the study how to measure the impact of HRM on organizational performance, observed that there is a serious limitation that literature pointed out the link between HRM and organizational performance as a "black box", i.e., lack of clarity, regarding what exactly leads to what.

The HRM policies managing systems may influence organizational performance indirectly through HRM outcomes. However, a direct effect of HRM policies on organizational performance may also be present (Sabarwal, 2014). Organizational Performance was defining as the Based on a combination of factors business, including work processes, group/team interaction and communication, and climate that promotes innovation, leadership, creativity, corporate cultural policies, and loyalty (Khan et al., 2014).

The improving performance and automation processes align employee's development and the common achieve with corporate objectives. Administrative performance Institutions can make plans Need to take advantage of Staff efforts in support of organizational objectives and strategic steps to judge outcomes, performance, and core competencies (Theeboom, et al., 2014).

Competitive Advantage

Competitive Advantage is work on development of organization to have defendable position in the market against its rivals (Tan & Sousa, 2015). Hakkak, & Ghodsi (2015) said "excellence in implementation" is a sustainable competitive advantage. Economic growth of an organization is its strength over competitors (Teece et al., 2016). Human capital has excellent potential for competitive advantage, should be maintain because difficult to imitate and replace human capital (Nieves & Quintana, 2018). Therefore, the cost advantage of human capital is sustainable and difficult to imitate. The composition of the organization and value of human resources increases probability of the organization to gain a competitive advantage (Delery & Roumpi, 2017). Information and knowledge are essential elements for survival and competitive advantage of the organization to compete locally and internationally (Rong et al., 2015).

Competitive advantage analyzed through different origins inclusive of company's market position and resources or by measuring the outcome of competitive efforts through firm performance (Dyerson & Harindranath, 2015). In practice, the sustainability of a firm's competitive advantage is measured by superior performance (Dyerson & Harindranath, 2015). According to Chen & Miller (2015) the fundamental need of the strategic management is to consider the competitive advantage as the most important condition for business

success. Švárová & Vrchota (2014) defined competitive advantage as something that separates the enterprise from others and keeps it alive and growing.

The biggest mistake of companies is insufficient utilization of their competitive advantage (Walsh & Dodds, 2017). New companies are coming to new markets, competition is getting tougher, and customers have the option to buy and compare products prices, the enterprise is required to increase quality demand, adaptability and flexibility (Švárová & Vrchota, 2014).

Electronic Human Resource Management (e-HRM)

Bondarouk, & Brewster (2016) the generally critical extremely significant areas of e-HRM. Of Electronic learning, training, and selection (e-HRM) are employee data department, money paid for working, worker, internet instruction, realization department, and compensation. For that, electronic human resource management It ability be activated in several fields of which rotation among employees Incentives, develop staff performance, the process of figuring out the worth, amount, or quality of something, payment, and benefits management (Atallah, 2016). There are some researchers think to believe this extremely significant for the e-HRM, system e-HR are related to workers in general planning, putting something into use and selection, performance appraisal, of value, bonuses, communication, payment and benefits, development and training (Atallah, 2016).

The e-HRM can be activate to complete goals of HRM. This section talking long on e-HRM functions. Besides, it provides books about electronic human resource management and it is regarding ideas, which matter like goals, kind, benefits significant and area of electronic human resource management (Atallah, 2016).

The literature of detection on the importance of electronic human resources, where modern technology played a useful role in order to increase staff skills, the responsibility is great on the shoulders Managers in order to perform tasks (Ibrahim & Yusoff, 2015).

Therefore, e-HRM planning leads to direct benefits to the organization and has effect on long-term business growth through the promotion of innovation and capacity building, which can ultimately lead to competitive advantage Which affects the organization's performance Alomari et al (2018), the research hypothesis for these relationships as follows:

H1: Electronic Human Resource Management has positive and significant effect on Competitive Advantage.

H2: Competitive Advantage has positive and significant effect on Organizational Performance.

H3: Competitive advantage mediates the relationship between e-HRM and organization performance.

H1a: e-Recruitment has significant effects on competitive advantage.

H1b: e-Selection has significant effects on competitive advantage.

H1c: e-Training has significant effects on competitive advantage.

H1d: e-Learning has significant effects on competitive advantage.

H1e: e-Compensation has significant effects on competitive advantage.

And the mediates the relationship:

H3a: Competitive advantage mediates the relationship between e-Recruitment and organizational performance.

H3b: Competitive advantage mediates the relationship between e-Selection and organizational performance.

H3c: Competitive advantage mediates the relationship between e-Training and organizational performance.

H3d: Competitive advantage mediates the relationship between e-Learning and organizational performance.

H3e: Competitive advantage mediates the relationship between e-Compensation and organizational performance.

Methodology

Structural equation modeling helps researchers manage their variables as well as calculate the estimate of the different explicit variables (indicators) applied rather than relying on the integral mean to overcome problems. According to the statistical assumption, the error of the mean should always be zero, which is completely unacceptable when calculating the mean to aid in research work (Afthanourhan et al., 2014). In applying the CFA analysis, the above variables started with a unidimensional process in order to identify and remove those items that were less than 0.60. According to awang (2012), any item less than 0.60 should be deleted because its value has little impact on the research topic. Therefore, the values in the arrow below appear near the end of the rectangle that reflects the latent measurement model. Once the specifications were finalized, fitness indicators were taken into account. Using fitness index assessments such as root mean square error approximation (RMSEA), additive fitting and baseline comparison are suitable as a fitness measure to measure the fitness level of a model. Therefore, all variables included in the study were taken into account based on previous studies to examine the relationship between external and internal constructs. However, this research work aims to evaluate the appropriateness of the measurement model using structural equation modeling and introducing the combined CFA.

The Confirmatory Factor Analysis (CFA) Procedure for Validating Measurement Model in this Study

The CFA is a type of factor analysis and is used to test the extent of consistency construct measure with the researcher's understanding of the nature of this study, the traditional techniques have been replaced to build reliability and determine validity, (Awang, 2012).

To confirm the measurement models, two criteria are selected to preserve the elements for each worker: 1- factors loading, 2- goodness-of-fit statistics. The social sciences accepted the value of 0.60 of the factor loading, identifying important indicators representing each element used in the questionnaire. Bollen (2014) suggested that each building should be represented as a minimum of three items because, if the elements are of little significance, it refers to a weak structure. Some quality statistics have been formulated according to different criteria based on statistical, theoretical, and scientific considerations. Kenny, et al., (2015) considered that the use of RMSEA in the range of 0.05 to 1.00 is acceptable and the value is less good. This technique is generally performed before using the Structural Madeleine Equation (SEM) for all latent constructs (Awang, 2012; Shih-I, 2011). In the same vein, confirmatory factor analysis is viewed as a procedure used to verify convergent and discriminant validity after performing structural equation modeling (Chua, 2009). Therefore, as a means of confirming the factorial structure of a set of observed variables, CFA is required to allow the researcher to explore hypotheses about the relationship between observed and latent constructs (Kashif et al., 2016; Moss, 2016). Therefore, this process was observed before using structural equation modeling (SEM) for all latent constructs (Awang, 2012; Shih-I, 2011). The study tested all measurement models of the latent structure for validity and reliability, as well as unidimensionality, before running the structural model. The general process is called confirmatory factor analysis (Awang, 2014; Moss, 2016; Suhr, 2006).

Results and Discussions

As for the reliability, it is adequate for the study to assess the Composite Reliability (CR) since it replaced the traditional method of Cronbach Alpha for analysis using Structural Equation Modeling (SEM) (Awang 2015; et al., 2019). The particular latent construct is considered valid if its fitness indexes achieved the three Model Fit categories namely Absolute Fit, Incremental Fit and Parsimonious Fit (Awang, 2014; Mahfouz et al., 2019, 2020).

Table 1

The three categories of model fit and their level of acceptance

Name of category	Name of index	Level of acceptance
Absolute Fit Index	RMSEA	RMSEA < 0.08
	GFI	GFI > 0.85, Ideal if > 0.90
Incremental Fit Index	AGFI	AGFI > 0.85, Ideal if > 0.90
	CFI	CFI > 0.85, Ideal if > 0.90
	TLI	TLI > 0.85, Ideal if > 0.90
	NFI	NFI > 0.85, Ideal if > 0.90
Parsimonious Fit Index	ChiSq/df	Chi-Square/ df < 5.0, Ideal if < 3.0

***The indexes in bold are recommended since they are frequently reported in literature Source: (Awang, 2015; Awang et al., 2018).

The research framework of this study consists of one exogenous construct namely, Electronic Human Resource Management e-HRM five components of e-Recruitment,e-Selection,e-Training ,e-Learning,e-Compensation, one mediator constructs namely, Competitive Advantage (CA), and one endogenous construct namely, Organizational Performance (OP).

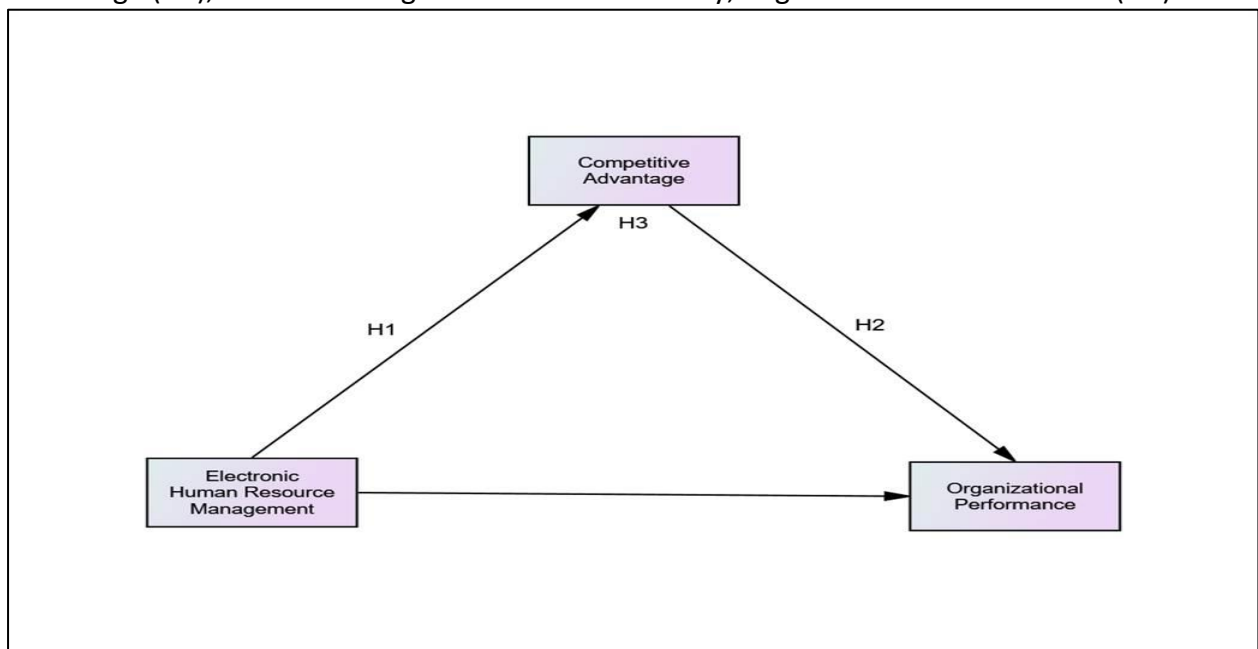


Figure 1

The research framework of the study

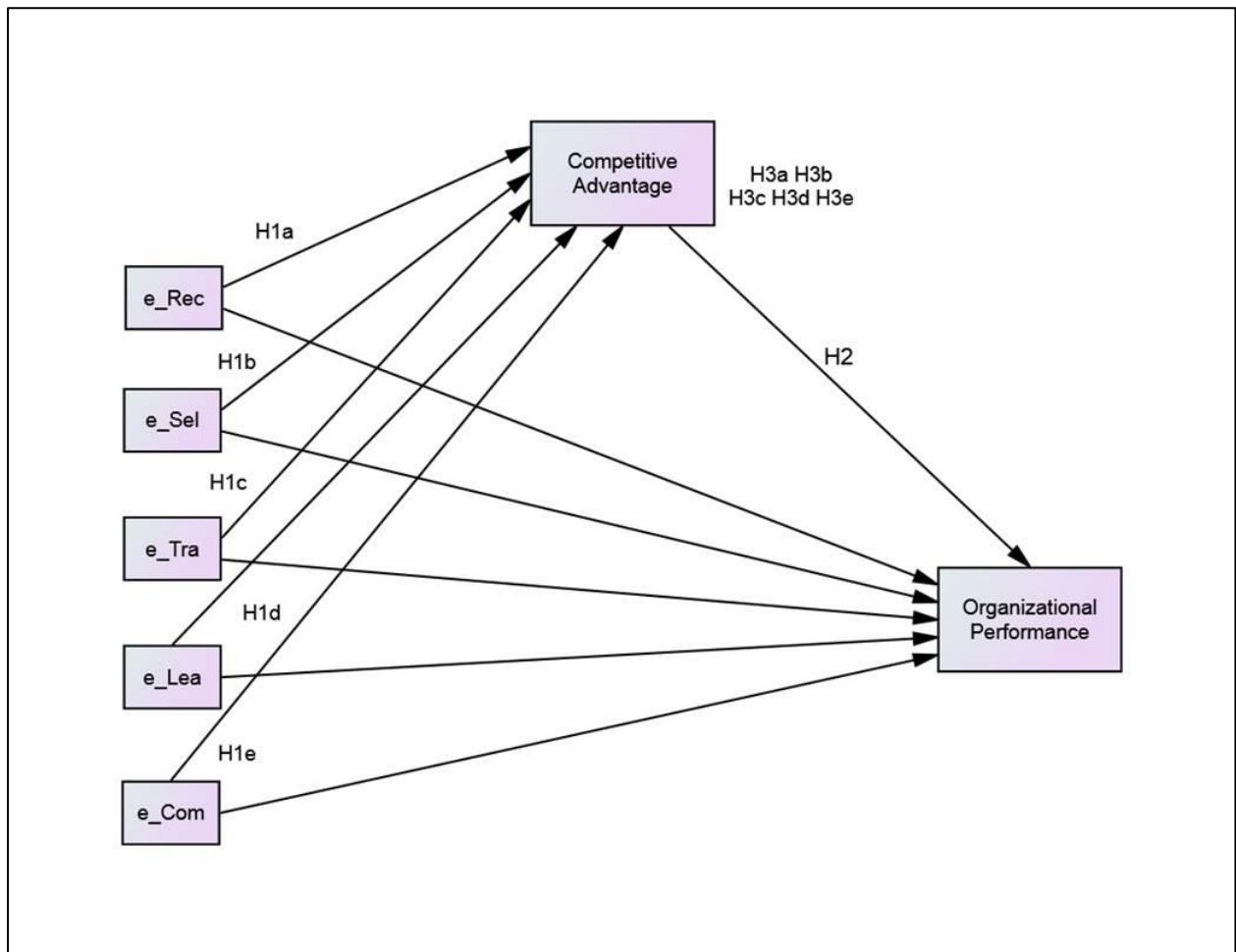


Figure 2: The research framework with five components of eHRM

The Pooled-CFA for all Validating Measurement Model of Constructs

The pooled-CFA is procedure is fast, efficient and accurate since by using the pooled CFA, the researcher could monitor one set of fitness indexes for all constructs involved in the model (Awang, 2014, 2015; Awang et al., 2018). More importantly, through pooled-CFA, the researcher could assess the correlation between constructs and develop the Discriminant Validity Index Summary in order to confirm that the constructs are discriminants among each other in the model (Awang et al., 2018; Afthanorhan et al., 2018, 2019; Rahlin et al., 2019a; Mahfouz et al., 2019, 2020; Raza & Awang, 2020; Baistaman et al., 2020a). The pooled-CFA procedure to assess all latent constructs at once is shown in Figure 2 shows all higher-order constructs have been transformed into first order constructs).

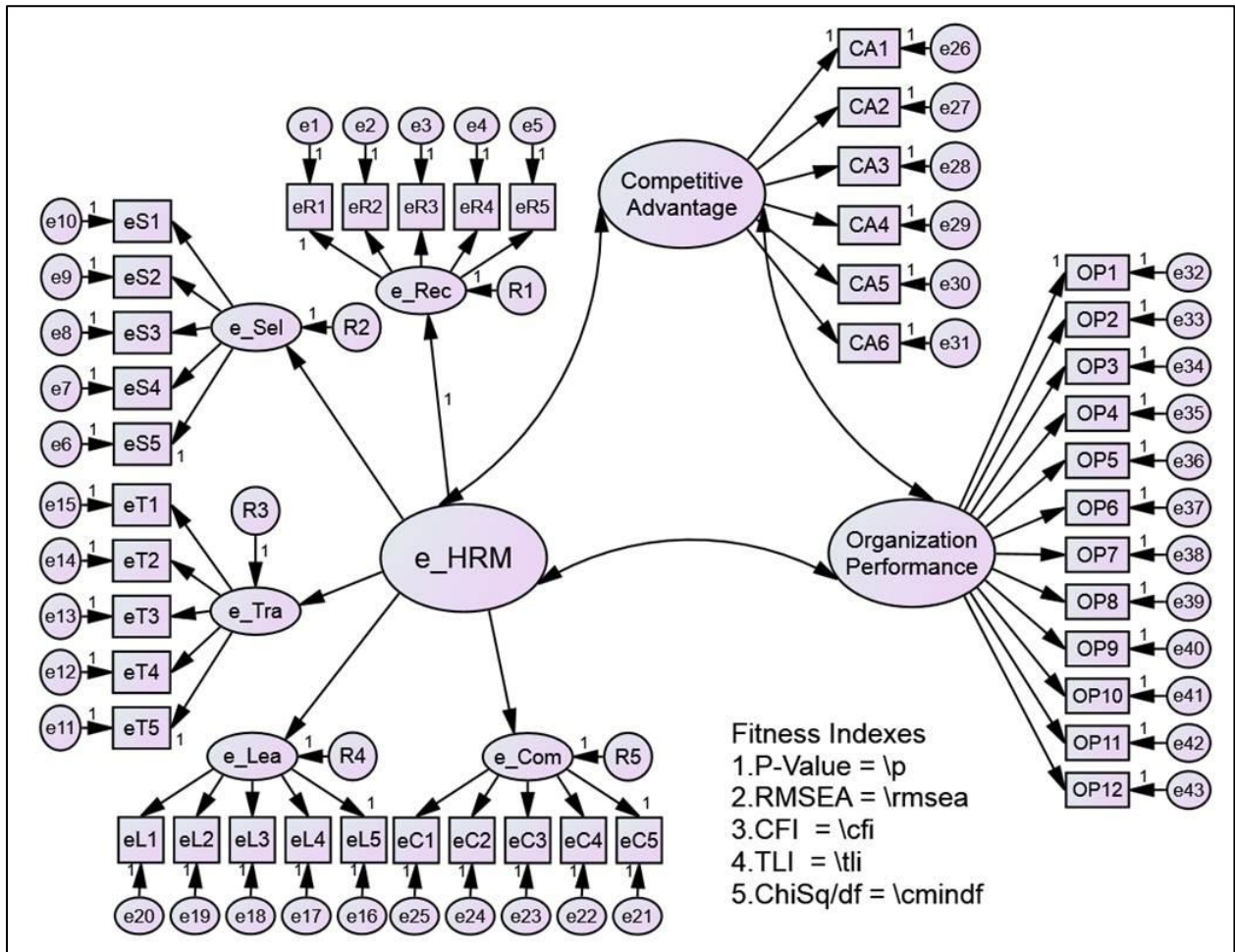


Figure 3: The pooled-CFA to asses for three constructs together

The output in Figure 3 presented the fitness indexes for all constructs in the model, the factor loading for every sub-construct or component measure the main construct, and the correlation between construct in the model. The fitness indexes should meet threshold values as shown in Table 1, the factor loading for every item should be a minimum of 0.6 and the correlation coefficient any two constructs should not exceed 0.85 (Awang et al., 2018; Asnawi et al., 2019; Shkeer & Awang, 2019a; Rahlin et al., 2019a, 2020; Mahfouz et al., 2019, 2020; Raza & Awang, 2020). The multi-collinearity problem occurs if the correlation between any pair of constructs exceeded threshold value 0.85 (Awang, 2014, 2015; Awang et al., 2018).

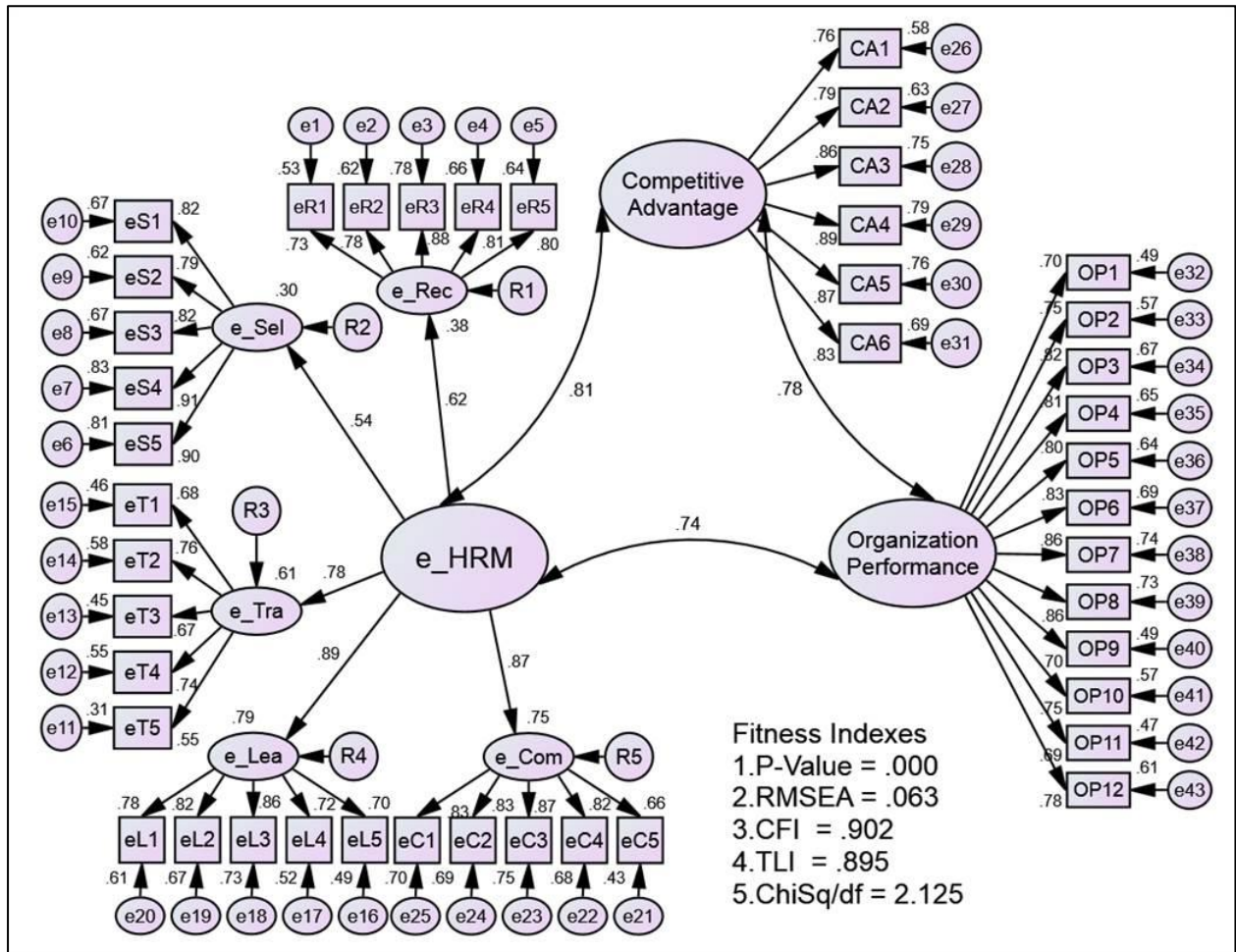


Figure 4: The results of Pooled-CFA procedure to validate all constructs

The Assessment for Construct Validity

The fitness Indexes in Figure 4 have met the threshold values as stated in Table 4.4. The Absolute Fit category namely RMSEA is 0.063 (achieved the threshold of less than 0.08), the Incremental Fit category namely CFI is 0.902 (achieved the threshold of greater than 0.90), and the Parsimonious Fit category namely the ratio of Chisq/df is 2.125 (achieved the threshold of less than 3.0). Thus, the measurement model of all latent constructs in Figure 4 have achieved the requirement for Construct Validity (Awang, 2019; Mahfouz et al., 2019, 2020).

The Assessment for Convergent Validity and Composite Reliability

For the assessment of Convergent Validity, the study needs to compute Average Variance Extracted (AVE). The construct achieved Convergent Validity if its AVE exceeds the threshold value of 0.5 (Aimran et al., 2017, 2017a; Afthanorhan, Rahlin et al., 2020, 2020a). As for assessing the Composite Reliability, the study needs to compute the CR and its value should exceed the threshold value of 0.6 for this reliability to achieve (Kashif et al., 2020; Mahfouz et al., 2020).

The AVE and CR for all these constructs together with the respective components are computed and presented in Table 2, Table 3, Table 4 and Table 5.

Table 2

The AVE and CR for e-HRM construct

Construct	Item	Factor Loading	CR (above 0.6)	AVE (above 0.5)
e-HRM	e-Rec	0.64	0.866	0.672
	e-Sel	0.64		
	e-Tra	0.78		
	e-Lea	0.89		
	e-Com	0.87		

The value of AVE is higher than 0.5 while the value of CR is higher than 0.6. Thus, the study can conclude that the convergent validity and composite reliability for e-HRM is achieved.

Table 3

The AVE and CR for e-HRM components

Construct	Item	Factor Loading	CR (above 0.6)	AVE (above 0.5)
e-Rec	eR1	0.73	0.899	0.642
	eR2	0.78		
	eR3	0.88		
	eR4	0.81		
	eR5	0.80		
e-Sel	eS1	0.82	0.928	0.721
	eS2	0.79		
	eS3	0.82		
	eS4	0.91		
	eS5	0.90		
e-Tra	eT1	0.68	0.813	0.568
	eT2	0.76		
	eT3	0.67		
	eT4	0.74		
	eT5	0.65		
e-Lea	eL1	0.78	0.884	0.606
	eL2	0.82		
	eL3	0.86		
	eL4	0.72		
	eL5	0.70		
e-Com	eC1	0.83	0.908	0.665
	eC2	0.83		
	eC3	0.87		
	eC4	0.87		
	eC5	0.66		

The value of AVE is higher than 0.5 while the value of CR is higher than 0.6. Thus, the study can conclude that the convergent validity and composite reliability for e-HRM components have been achieved.

Table 4

The AVE and CR for Competitive Advantage construct

Construct	Item	Factor Loading	CR (above 0.6)	AVE (above 0.5)
Competitive Advantage	CA1	0.76	0.932	0.697
	CA2	0.79		
	CA3	0.86		
	CA4	0.89		
	CA5	0.87		
	CA6	0.83		

The value of AVE is higher than 0.5 while the value of CR is higher than 0.6. Thus, the study can conclude that the convergent validity and composite reliability for Competitive Advantage is achieved.

Table 5

The AVE and CR for Organizational Performance construct

Construct	Item	Factor Loading	CR (above 0.6)	AVE (above 0.5)
Organizational Performance	OP1	0.72	0.958	0.655
	OP2	0.70		
	OP3	0.85		
	OP4	0.81		
	OP5	0.80		
	OP6	0.93		
	OP7	0.86		
	OP8	0.88		
	OP9	0.70		
	OP10	0.75		
	OP11	0.89		
	OP12	0.78		

The value of AVE is higher than 0.5 while the value of CR is higher than 0.6. Thus, the study can conclude that the convergent validity and composite reliability for Competitive Advantage is achieved.

With reference to the Average Variance Extracted (AVE) and Composite Reliability (CR) values in Table 2, Table 3, Table 4 and Table 5, the study found all AVE and CR exceed their threshold values of 0.5 and 0.6 respectively Awang (2015); Awang et al (2015, 2018); Azli et al (2017); Afthanorhan et al (2018, 2019); Baistaman et al (2020, 2020a) Thus, the study can conclude that the Convergent Validity and Composite Reliability for all latent constructs in the model have been achieved.

The Assessment of Discriminant Validity among Constructs

The study needs to assess another type of validity requirement for the model namely, discriminant validity. The discriminant validity assessment is to ensure that no redundant constructs occur in the model. Redundant construct occurs when any pair of constructs in the model are highly correlated. For assessing the discriminant validity, one needs to develop the

discriminant validity index summary as shown in Table 4.9. The diagonal values in bold are the square root of the AVE of the respective constructs while other values are the correlation coefficient between the pair of the respective constructs.

Table 6

The Discriminant Validity Index Summary for all Constructs

Construct	e-HRM	Competitive Advantage	Organizational Performance
e-Human Resource Management	0.820		
Competitive Advantage	0.81	0.834	
Organizational Performance	0.74	0.78	0.809

Referring to Table 6, the Discriminant Validity of the respective construct is achieved if the square root of its AVE exceeds its correlation value with other constructs in the model (Awang, 2015; Awang et al., 2018; Yusof et al., 2017; Azli et al., 2017; Mohamad et al., 2018, 2019; Afthanorhan et al., 2018, 2019; Rahlin et al., 2019a; Mahfouz et al., 2019, 2020; Raza & Awang, 2020). In other words, the Discriminant Validity is achieved if the diagonal values (in bold) are higher than any other values in its row and its column. The tabulated values in Table 6 meet the threshold of Discriminant Validity. Thus, the study concludes that the Discriminant Validity for all constructs is achieved.

Findings

The findings serve as the basis for the conclusion drawn in this study. In light of this, the research focused on assessing the employee competence within the Greater Amman Municipality using the CFA analysis. The fitness of the measurement model was evaluated through the pooled-CFA approach, employing the structural equation modeling technique with AMOS-24.

Conclusion

The questionnaire that was created consists of 49 items. The research findings indicate that conducting a CFA analysis is highly beneficial in assessing the suitability of the questionnaire for the study. Consequently, all items have met the criteria outlined by the proposed scales. The significance of utilizing pooled CFA in a complex subject matter, rather than the typical CFA, was emphasized in the present study based on CFA analysis. Undoubtedly, the pooled CFA represents a simplified approach for researchers and scholars when conducting research that involves complex variables and items. It enables them to gain a better understanding of empirical studies. Therefore, it is appropriate to suggest to readers who are new to the field to start by utilizing pooled confirmatory factor analysis when conducting empirical research, particularly when the subject matter is complex.

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