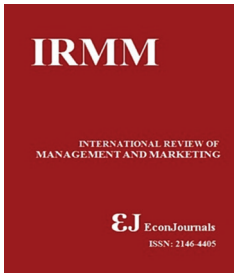

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Exploring Items and Developing Instrument for Measuring Organizational Performance among Small Medium Enterprises in Jordan

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ABSTRACT

This paper explored the reliability of an instrument to evaluate organizational performance (OP) of the SMEs sector in Jordan employing Exploratory Factor Analysis (EFA). The paper used EFA and is different from other studies with regard to Total Quality Management (TQM) practice as a mediator between Entrepreneurial characteristics and OP. We applied cross-sectional study design, and data collection was from a proportionate Stratified Sampling with 100 questionnaires distributed to managers or owners of Jordanian SMEs grouped by industry type (food industry, machinery/equipment, and paper manufacturing). We verified the consistency of the instrument which contained 10 items for each one of the constructs. The researchers employed Cronbach's Alpha to verify the internal reliability of the current instrument and confirmed that it was reliable. This paper provides a detailed explanation of the procedures for conducting the EFA on Organizational Performance. The outcomes of this study would benefit those involved in future research related to Organizational Performance.

Keywords: Exploratory Factor Analysis, Entrepreneurial Characteristics, TQM Practices, Organizational Performance
JEL Classification: L2, L3

1. INTRODUCTION

Over the past few decades, globalization and strong international competition have significantly transformed the business environment. Many companies in Jordan have accepted and implemented various quality initiatives, including management standards such as ISO9000 and Total Quality Management (TQM). (Al-Damen, 2017). The focus on Total Quality Management as a more efficient company management strategy has seen a significant increase in recent years, with various researches demonstrating the effect of implementing TQM on organizational performance (OP).

Organizational performance is a vital indicator of a firm's survival. In this regard, according to Abubakar et al. (2019) OP in its simplest form is the attainment of organizational goals. Nikpour (2017) stated that Organizations' success can be reflected in their performance; moreover, OP is regarded as the total achievements of all enterprises. So the notion of OP is related to the organization's continued existence and its achievements (Ahmed and Shafiq, 2014).

TQM is an important technique compared to the traditional way of doing business; its practices are essential to guarantee survival in a competitive world market (Nallusamy, 2016). In this regard, TQM can, therefore, be defined as a management model that aims to satisfy the requirements and expectations of consumers within the organization through continuous improvement of the standard of products and services and therefore the integration of all functions and processes within the organization is followed by significantly impacting customer satisfaction (Hoang et al., 2010; Singh et al., 2018). Meanwhile, Amin et al. (2017) described TQM as "a management philosophy that emphasizes the involvement and commitment of all employees

throughout the entire organization to provide high-quality products and services and fulfill customer expectations."

Owners/managers are of major significance in OP (Sarwoko et al., 2013). As "Entrepreneurial Characteristics" (ECh) refers to personal characteristics that result in superior or efficient work performance (Karunanithy and Jeyaraman, 2013). Meanwhile, according to Kusmintarti et al. (2016) Entrepreneurial Characteristics are a variety of characteristics that mark an individual to be mentioned as an entrepreneur. Numerous studies have examined ECh, but researchers have failed to arrive at a consensus on the subject. Entrepreneurial Characteristics enable the manager to set business objectives and targets for the company and show how they can be achieved (Solesvik, 2012). Where by this manager is prepared to take risks to enable the company to succeed (Nilasari, 2019; Oyeku et al., 2014).

The objective of this paper, therefore, is to investigate TQM practices in the mediating relationship between ECh and OP.

2. MATERIALS AND METHODS

The data for this study were collected using a self-administered survey questionnaire that was an adaptation of various earlier researches (Alrowwad et al., 2017; Bezzina, 2010; Brah et al., 2000, 2002; Fuentes-Fuentes et al., 2004; Goldberg and Wooldridge, 1993; Maina, 2016; Nasri and Zekovksi, 2014; Neneh, 2011; Oduol, 2015; Saravanan and Rao, 2006).

The adaptation of the questionnaire was guided by the subject of this study, and directed at owners/managers of SMEs in three industrial sectors in Jordan. The questionnaire comprised four sections: Section one concerned the information pertaining to the demographic profiles of the participants (gender, age, educational level, and work experience); Section Two was related to Entrepreneurial Characteristics (the Independent variable), while Section Three was focused on TQM practice (mediator variable) and finally Section Four was in relation to Organizational Performance (the Dependent variable).

The constructs were measured using a 10-point scale. According to Alias et al (2019); Awang et al (2018); Mohamad et al (2018), 1 is for "strongly disagree," while, 10 is for "strongly agree".

The instrument was based on past research and adjusted accordingly. The researchers conducted pre-tests, and pilot-test for these adjusted items to enhance them prior to applying them in the final questionnaire. A pre-test involves the questionnaire being checked by experts to make sure all questions provided are suitable and necessary corrections made are incorporated before proceeding further (Zikmund et al., 2013). In the case of this study, content validity was reviewed by 10 experts and their comments were taken into consideration. The face validity was conducted by English language experts, and criterion validity was reviewed by an expert in statistics. Following the completion of these validation tests, we distributed the instrument to three respondents to guarantee that there were no more problems before distributing the instrument to 100 respondents for a pilot study. A pilot study is a small-scope study that can recover shortcomings in the design of a proposed survey which can be addressed before conducting the large final-scope investigation (Viechtbauer et al., 2015).

The EFA was run following Bahkia et al (2019); Rahlin et al (2019); Shkeer and Awang (2019); Yahaya et al (2018), and need to be carried out for individual variables to check for alterations in the dimensionality of items from previous researches because of differences in the characteristics of past populations.

Table 1: The mean and standard deviation for every item measuring entrepreneurial characteristics

	Summary of item statement	Mean	SD
IQ1	I seek excellence in everything I do	7.32	1.33
IQ2	I always try to learn lessons from failures	7.33	1.33
IQ3	I sometimes invest the money on a calculated risk project	7.54	1.37
IQ4	I have the ability to identify innovative approaches to existing situations	7.43	1.47
IQ5	I am continually in search of discovery	7.42	1.43
IQ6	I had other option than working here	7.87	1.38
IQ7	I believe that I can determine my own destiny	7.93	1.33
IQ8	I believe my success lies in my abilities and efforts	7.69	1.41
IQ9	I believe in my ability to achieve set goals and objectives	8.03	1.37
IQ10	I want to be the sole decision-maker	7.94	1.39

Table 2: The Value FOR KMO Bartlett's test

KMO and Bartlett's test	
Kaiser-Meyer-Olkin measure of sampling adequacy	0.882
Bartlett's test of sphericity	
Approx. Chi-square	632.616
df	45
Sig.	0.000

3. RESULTS AND DISCUSSION

EFA was conducted for all constructs to test the dimensionality of items that may have been modified from previous researches, as this study has made adjustments to the instruments developed by earlier studies and some of the items were subjected to adaptation in line with the needs of the current research.

Table 3: Total variance explained contributed by individual components of entrepreneurial characteristics

Total variance explained						
Component	Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.670	56.697	56.697	3.727	**37.269**	37.269
2	1.062	10.618	67.314	3.005	**30.046**	**67.314**

Extraction method: Principal component analysis

The EFA procedure contains the mean score for every item together with its standard deviation, the Kaiser-Meijer-Olkin (KMO) measure of sampling adequacy, the total variance explained for individual constructs, the factor loading for all items, the dimensionality of items in their respective components, and lastly, Cronbach's Alpha for the internal consistency score for the construct (Baistaman et al., 2020; Ehido et al., 2020; Rahlin et al., 2019).

3.1. The EFA Procedures for Entrepreneurial Characteristics

In measuring this construct, 10 items (IQ1-IQ10) from Table 1 were used and every item was measured using a 10-point Likert scale, where 1 refers to "strongly disagree" and 10 refers to "strongly agree." The mean response, standard deviation, and item statement, for every item, are presented in Table 1, while the mean score and standard deviation for every item are presented, showing the consistency of the score distribution as the standard deviation for each item is <1.5.

Table 4: The factor loading for each item and their components

Rotated component matrix		
	Component	
	1	2
IQ1		0.703
IQ2		0.611
IQ3		0.740
IQ4		0.728
IQ5		0.749
IQ6	0.770	
IQ7	0.828	
IQ8	0.776	
IQ9	0.799	
IQ10	0.828	

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. a. Rotation converged in 3 iterations.

Table 5: The internal reliability value for each component

Reliability statistics		
Component	Number of items	Cronbach's alpha
1	5	0.910
2	5	0.829
All items	10	0.912

EFA employed Principal Component Analysis (PCA) for these 10 items to evaluate the Entrepreneurial Characteristics construct. The outcomes in Table 2 indicate Bartlett's Test of Sphericity which is Significant ($P < 0.05$), besides the KMO Measure of Sampling Adequacy, is 0.882. which is higher than the minimum requirement of 0.6, (Awang, 2012) and thus implies the adequacy of the sample size (Bahkia et al., 2019; Hoque et al., 2017, 2018; Noor et al., 2015; Shkeer and Awang, 2019). Both values (Bartlett Test is significant and KMO >0.6 suggest the adequacy of the current data.

The scree plot in Figure 1 indicates that two mutually exclusive components have emerged from EFA. The respective items that fall under each component were determined later by the EFA procedure (Alias et al., 2019; Rahlin et al., 2019; Yahaya et al., 2018).

The total variance explained in Table 3 for this construct is 67.314% (component 1 contributes 37.269%, and component 2 contributes 30.046%) The overall variance explained is acceptable since it is greater than the minimum of 60% (Bahkia et al., 2019; Baistaman et al., 2020; Noor et al., 2015; Yahaya et al., 2018).

Table 4 presents the components and dimensions for each item and shows that all items belong to one of two components, according to Awang et al (2018); Ehido et al (2020); Yahaya et al (2018), the minimum acceptable value of the factor loading for individual items should be >0.6 to ensure retention.

Thus, all items were retained.

Figure 1: The Scree Plot clearly showing the emergence of two components

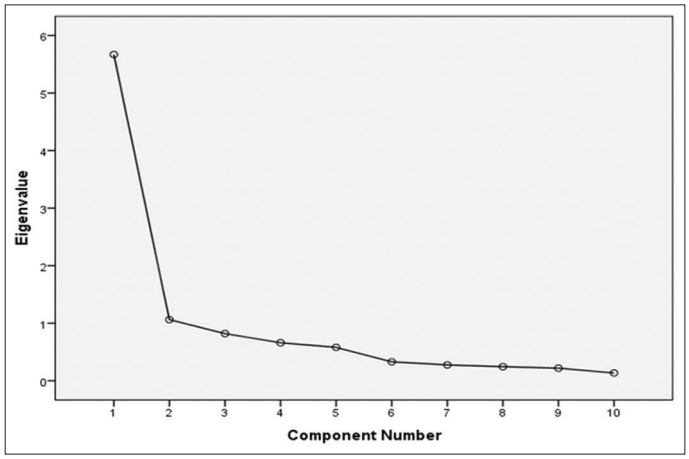

Table 6: The mean and standard deviation for every item measuring TQM practices

	Summary of item statement	Mean	SD
IIQ1	Our firm takes into account the competitor organizations in its strategic planning	8.03	1.12
IIQ2	Our firm encourages involvement, moving towards "Best Practice"	8.16	1.08
IIQ3	Our firm has specific quality goals identified by top-level managers	8.05	1.11
IIQ4	Our firm implements continuous improvement strategies, to better serve customers in a highly competitive environment	7.95	1.14
IIQ5	Our firm achieves quality goals	8.06	1.08
IIQ6	Our firm always emphasizes continuous improvement in all activities at various levels	7.99	1.12
IIQ7	Our firm uses customers' requirements and expectations as the basis for measuring quality	7.81	1.20
IIQ8	Our firm utilizes the needs of customers in the design of new products and services	7.90	1.34
IIQ9	Our firm focuses on customer complaints and passes them to the management	7.89	1.25
IIQ10	Our firm is frequently in close contact with our customers	8.06	1.25

3.2. The Internal Reliability for the Instrument Measuring Entrepreneurial Characteristics

The final step is to compute the internal reliability of each construct. Since this construct is measured using two components, it is required to calculate the Cronbach's Alpha for every component to assess the internal reliability of a certain component in the measurement of the construct. Table 5 indicates that Cronbach's Alpha test is 0.912, exceeding 0.7, which confirms the reliability of these components.

3.3. EFA Procedures for TQM Practices

This construct was calculated utilizing a measurement of 10 items in Table 6 (IIQ1-IIQ10) and each was by utilizing a 10-point Likert scale, with 1 referring to "strongly disagree" and 10 indicating "strongly agree." The mean response, standard deviation, and item statement for every item are presented in Table 6.

The mean score and standard deviation for each item is presented, showing the consistency in the score distribution since the standard deviation for each item is below 1.5.

EFA used PCA as an extraction method for these 10 items to assess the TQM Practices construct. The outcomes depicted in Table 7 show Bartlett's test of sphericity (BTS) is Significant ($P < 0.05$), and the KMO measure of sampling adequacy is 0.830, which is higher than the minimum requirement of 0.6, thus indicating the adequacy of the sample size (Rahlin et al., 2019; Shkeer and Awang, 2019). Both the significant Bartlett Test and KMO >0.6 denote the adequacy of the current data.

The scree plot in Figure 2 indicates that two mutually exclusive components have emerged from EFA. The respective items that fall under each component were determined by the EFA procedure (Alias et al., 2019; Baistaman et al., 2020; Yahaya et al., 2018).

The total variance explained in Table 8 for this construct is 67.602%, (component 1 contributes 34.020%, and component 2 contributes 33.582%). The overall variance explained is acceptable as it is higher than the minimum of 60% (Hoque et al., 2017, 2018; Rahlin et al., 2019; Yahaya et al., 2018).

Table 7: The value for KMO Bartlett's test

KMO and Bartlett's test	
Kaiser-Meyer-Olkin measure of sampling adequacy	0.830
Bartlett's test of sphericity	
Approx. Chi-square	514.632
df	45
Sig.	0.000

Table 9 presents the outcomes of the components and dimensions for individual items showing that all items belong to one of two components .The minimum acceptable value of the factor loading for each item should be >0.6 to ensure retention (Awang et al., 2018; Yahaya et al., 2018). and as such, all items are retained.

3.4. The Internal Reliability for the Instrument Measuring TQM Practices

Lastly, the internal reliability of individual constructs is computed. Since this construct is measured using two components, it is required to calculate the Cronbach's Alpha for every component to facilitate the internal reliability of the particular component in evaluating the construct. Table 10 indicates that Cronbach's Alpha test is 0.863, which exceeds 0.7, thus confirming the reliability of these items.

3.5. The EFA Procedures for Organizational Performance

This construct was calculated employing 10 items presented in Table 11 (IIIQ1 to IIIQ10) and every item was evaluated using a 10-point Likert scale as mentioned above. The mean response, standard deviation, and item statement, for each item, are shown in Table 11.

The mean score and standard deviation for every item are presented, showing their consistent in score distribution as the standard deviation for every item is below 1.5.

EFA employed PCA to extract these 10 items to measure the TQM Practices construct. The outcomes in Table 12 indicate

Figure 2: The scree plot clearly showing the emergence of two components

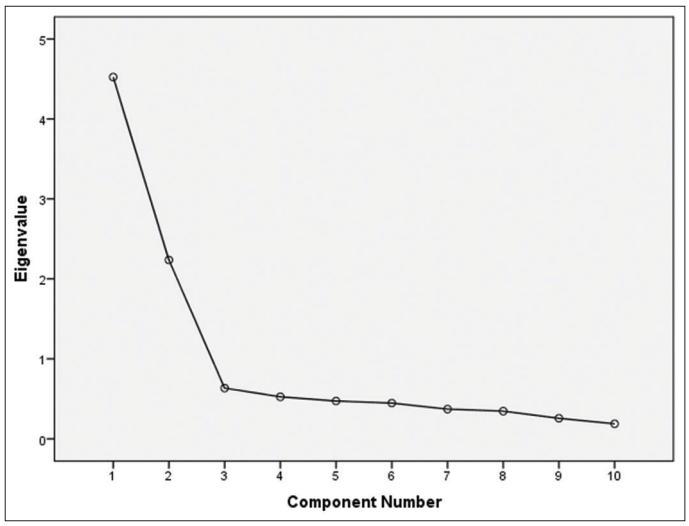

Table 8: Total variance explained contributed by every component of TQM practices

Total variance explained						
Component	Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.524	45.239	45.239	3.402	**34.020**	34.020
2	2.236	22.362	67.602	3.358	**33.582**	**67.602**

Extraction method: Principal component analysis

the significance of BTS is Significant (P < 0.05), in addition to KMO Measure of Sampling Adequacy of 0.886 which exceeds the minimum requirement of 0.6 and suggesting the adequacy of the sample size (Yahya et al., 2018). Both values (BTS which is significant and KMO >0.6) denote the adequacy of the current data.

The scree plot in Figure 3 shows that two mutually exclusive components have emerged from the EFA. The respective items that fall under each component were determined later by the EFA procedure (Bahkia et al., 2019; Yahaya et al., 2018).

The total variance explained in Table 13 for this construct is 66.773 (component 1 contributes 33.653%, and component 2 contributes 33.120). The overall variance explained is acceptable as it is greater than the minimum of 60% (Bahkia et al., 2019; Rahlin et al., 2019; Yahaya et al., 2018).

Table 14 shows the components and dimensions for each item belonging to one of two components. According to Awang et al (2018); Yahaya et al (2018), the minimum acceptable value of the factor loading for each item should be >0.6 to ensure retention. As such, all items are retained.

Figure 3: The scree plot clearly showing the emergence of two components

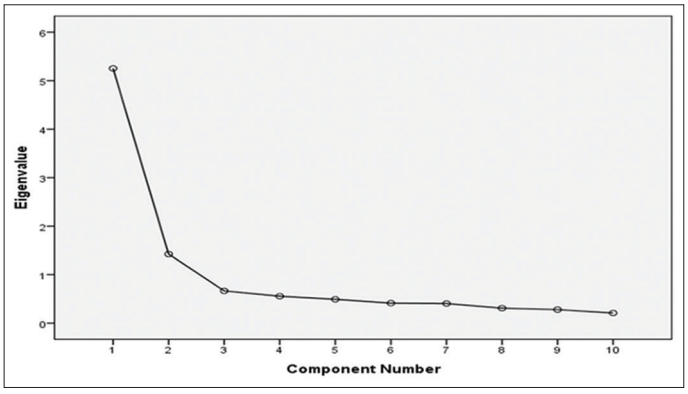

Table 9: The factor loading for all items and their components

Rotated component matrix		
	Component	
	1	2
IIQ1		0.770
IIQ2		0.833
IIQ3		0.769
IIQ4		0.772
IIQ5		0.853
IIQ6	0.835	
IIQ7	0.784	
IIQ8	0.809	
IIQ9	0.845	
IIQ10	0.763	

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. a. Rotation converged in 3 iterations

Table 10: The internal reliability value for each component

Reliability statistics		
Component	Number of items	Cronbach's alpha
1	5	0.878
2	5	0.871
All items	10	0.863

3.6. The Internal Reliability for the Instrument Measuring Organizational Performance

Lastly, the internal reliability of every construct is computed. Since this construct is measured using two components, it is required to calculate the Cronbach's Alpha for every component in the assessment of the internal reliability of the particular component in evaluating the construct. Table 15 indicates that Cronbach's Alpha test is 0.898, which exceeds 0.7, thus confirming the reliability of these items.

4. CONCLUSION

The EFA outcomes of the current study provided a framework for the extraction of 10 dimensions of Organizational Performance, as well as the verification process of the current study to ensure that the new Organizational Performance instruments (Customer satisfaction, customer retention, employees' performance and satisfaction, Product quality, market shares, innovation, and Sales growth) possess internal consistency as well as stability across samples.

Table 11: The mean and standard deviation for every item evaluating organizational performance

	Summary of item statement	Mean	SD
IIIQ1	Levels of our customer complaints within the last period have decreased significantly	7.65	1.35
IIIQ2	Our firm's reputation has improved in the eyes of the customers	7.60	1.19
IIIQ3	Our firm has succeeded in retaining our existing customers	7.88	1.33
IIIQ4	Our firm's Employees have committed maximum efforts to their work	7.83	1.18
IIIQ5	The level of employees' productivity in our firm has improved in the last period	7.44	1.26
IIIQ6	Our firm promoted the level of employee job satisfaction over the last period	7.93	1.06
IIIQ7	Our firm has improved existing products and developed new products over the last period	8.02	1.10
IIIQ8	Our firm's market share in the last period has increased	8.02	1.21
IIIQ9	The level of innovations in our firm has improved	7.92	1.10
IIIQ10	Overall sales growth of our firm relative to competitors in the last period has increased	7.75	1.08

Table 12: The value for KMO Bartlett's test

KMO and Bartlett's test	
Kaiser-Meyer-Olkin measure of sampling adequacy	0.886
Bartlett's test of sphericity	
Approx. Chi-square	522.653
df	45
Sig.	0.000

Table 13: Total variance explained contributed by each component of organizational performance

Total variance explained						
Component	Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.254	52.537	52.537	3.365	**33.653**	33.653
2	1.424	14.236	66.773	3.312	**33.120**	**66.773**

Extraction method: Principal component analysis.

Table 14: The factor loading for all items and their components

Rotated component matrix		
	Component	
	1	2
IIIQ1		0.761
IIIQ2		0.833
IIIQ3		0.731
IIIQ4		0.720
IIIQ5		0.825
IIIQ6	0.772	
IIIQ7	0.794	
IIIQ8	0.816	
IIIQ9	0.771	
IIIQ10	0.714	

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. a. Rotation converged in 3 iterations

Table 15: The internal reliability value for each component

Reliability statistics		
Component	Number of items	Cronbach's alpha
1	5	0.871
2	5	0.873
All items	10	0.898

The outcomes of validity and EFA offered considerable support for the meaningful use of TQM practice in SMEs. The dimensions of Entrepreneurial Characteristics, TQM practice, and Organizational Performance were used in this research to evaluate the reliability of these dimensions and demonstrated high Cronbach's Alpha value, met Bartlet Test achievements (significant), KMO (>0.6,) and exceeded 0.60 of factor loadings. All these reflect the adequacy of data. This approach is therefore recommended to be used in future research.

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