

# Psychometric Properties Examination of Organizational Culture Construct: Evidence from Pakistan

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## Abstract

The current study examined the psychometric properties of the Denison's organizational culture scale in the banking sector of Pakistan. The questionnaire was pre-tested with one hundred participants before collecting the data for main analysis. Following this, the data was collected from three hundred and thirty three banking professionals. Using Smart-PLS 3.0 software we analyzed the data. The confirmatory factor analysis results revealed that all the cultural components including involvement, consistency, adaptability and mission were of high relevance. The results also have reported satisfactory level of individual item reliability, internal consistency reliability, convergent validity and discriminant validity. Referring to these results, we forward that the Denison scale of organizational culture would potentially help banking professionals and academic researchers for gauging organizational culture and its effectiveness in the banking sector of Pakistan.

**Keywords:** Organizational culture, Denison theory, banking sector, Pakistan, PLS, Construct Validity

## Introduction

Organizational culture has been defined in a number of ways, each holding a differing perspective (Hatch, 1993). Moreover, researchers such as Deal and Kennedy, (1982) have also suggested that the strength of the culture also varies from organization to organization. While highlighting the importance of organizational culture, researchers has suggested that organizations attain sustainability by residing in the ideas, values, norms, rituals and beliefs (Sackmann, 1991). Two important perspectives could be drawn on the basis of above literature. First, the organizational culture varies from organization to organization therefore, its assessment and understanding would be important for every organization that operates in a varied environment. Secondly, the cultural understanding holds importance for organizational sustainability therefore, its assessment and appropriate development is highly required.

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Particularly, there have been varying opinions over measurement of organizational culture. In this regard, two schools of thought prevail, where one follows the assumption that culture cannot be measured (Schein, 2004) and the second believes otherwise (Denison, 1990; O'Reilly & Chatman, 1991). As a result of second perspective, researchers came up with different approaches in developing appropriate measure for organizational culture. Amongst others, the contribution of Denison (1990) brought a significant hope for practicing managers and academicians in measuring complex organization cultures.

The core objective of the present study was to investigate the effectiveness of organizational culture-scale (Denison, 2000) of organizational culture in the banking industry in Pakistan, this assessment of organizational culture instrument was deemed necessary due to the reason that the effectiveness of culture rests on its strength (Deal & Kennedy, 1982). Secondly, researchers have evaluated the effectiveness of organizational culture into different countries and industries such as Taiwan (Liao, Chang, Hu, & Yueh, 2012) Greek (Simosi, & Xenikou, 2010) Australia (Su, Baird, & Blair, 2009), China (Kragh, 2012), Hong Kong (Ngo & Loi, 2008), Japan (Jung & Takeuchi, 2010) and India (Mathew & Ogbonna, 2009) and many others, however, no mature evidence on the assessment of organizational culture in the banking sector of Pakistan has been found in the existing literature. Therefore, the present study aimed at investigating the status-quo and understanding of organizational culture by the bank employees in Pakistan. Therefore, the objective of the present study was to answer following research question: What are the psychometric properties of organizational-culture-scale and its structure factor in the banking sector of Pakistan.

### **Literature review**

The past literature on organizational science has observed organizational culture important for the reason that it could potentially help organization in improving its efficiency as well as effectiveness (Schein, 1990). However, the extant literature on the efficient and effective role of organizational culture has been portrayed into Western culture predominantly (*Refer for example* O'Reilly et al., 1991; Denison & Mishra, 1995; Barney, 1986). Therefore, paying due attention towards Asian perspective was necessity of time.

The present study adopted the view that although organizational culture is complex but it could be measured in the business settings (Denison, 1990; O'Reilly & Chatman, 1991). To further support this view, the present study attempted to validate the organizational culture scale (Denison, 2000) in the Pakistani context. The Denison's scale was developed by performing a number of assessments over the time under which over 40,000 respondents from 1000 companies participated (Denison, 2000; Denison & Mishra, 1995). The scale was aligned with the theoretical proposition forwarded from Hofstede, (1980) and Trompenaars (1993) and proposed four components of organizational culture.

The organizational culture scale developed and introduced by Denison (2000) was a result of a long-stream of the research that was conducted by Denison and his colleagues (*refer for*

*example* Denison, 1990; Denison & Mishra, 1995; Denison & Neale, 1996; Denison et al., 2000; Denison, Haaland, & Neale, 2002). This scale (Denison, 2000) represents four critical domains of organizational culture that are discussed hereunder:

***Involvement:*** This component reflects on organization's approach towards empowering their human resource, creating strong teams and encouraging teamwork, and developing human-resource across the organization (Likert, 1961; Becker, 1964; Lawler, 1996). The practice of *involvement* is reflected when organizational employees (regardless of their rank & order) have a feeling that their suggestions are of value to the organization (Spreitzer, 1995).

***Consistency:*** The organizations experience superior performance only when they practice "strong" cultures; the cultures that are rated high in consistency, coordination and integration (Saffold, 1988). Particularly, the roots of individual behavior are established from their core values (Block, 1990) but for this sort of steadiness the organizations require a higher degree of conformity (Senge, 1990).

***Adaptability:*** Bringing change in a well-integrated organization is quite challenging (Kanter, 1983). On the other hand, the top management of adaptable organizations allows valued input from customers, risk taking, learning from mistakes they make, and are capable to introduce and adopt change (Senge, 1990; Nadler, 1997). The adaptable organizations are those that change their system on a continuous paradigm for their overall improvement (Stalk, 1990).

***Mission:*** A clear sense of purpose and direction is a necessity for organizations that tend to be successful and or have remained successful (Mintzberg, 1987); moreover, these organizations carry a mission that elucidates the strategic agenda and vision of the organization (Hamel & Prahalad, 1994; Ohmae, 1982).

## **Research method**

### ***Pre-test***

The scale was first pre-tested with 100 banking professionals and researchers to make necessary changes related to wording, formatting, clarity of statements, simplicity and to avoid ambiguity of the scale-items (Yaghmale, 2009; Dillman, 1991). The pre-test responses suggested that the scale to be used consisted some of the items that could not be responsively answered by the bank employees of Pakistan secondly the scale was reported to be very length, therefore, the present study adopted 36 items available in Table 2 that were further examined with a larger sample of 335 banking professionals as survey participants.

### ***Participants and procedure***

The present study followed Krejcie and Morgan, (1970) to determine appropriate sample, in doing so, a total of 335 responses were received from bank employees using proportionate stratified random sampling technique. The collection of the data was made possibly using mail survey.

### ***Instrument***

The objective of the present study was to assess the psychometric properties of the organizational culture scale in the banking industry of Pakistan. The study employed the Denison, (2000) scale with its four core components namely, involvement, consistency, adaptability and mission. First, the items chosen from **involvement** reflect empowerment, team orientation and capability development as suggested in the original scale. Similarly, the items from **consistency** reflect core values, agreement, coordination and integration. Also, the items from **adaptability** reflect creating change, customer focus, organizational learning. Lastly, the items from **mission** reflect strategic direction and intent, goals and objectives and vision. With all these dimensions, the Denison, (2000) scale therefore was used to assess its relevance to banking industry of Pakistan, for this reason a total of 36-items from the original scale were used.

### ***Demographic Profile***

The frequency analysis revealed that majority of the survey participants were male (87.2) percent however, the percentage for female participant was 12.8. With regards to age group, 44.5 percent were in the age-group from 30-40, followed by age-group of 18-below 30 years with 31.3 percent. However, 20.6, and 3.6 participants were from age groups of 41-50 and 51-60 respectively. 70.7 percent of the participants had postgraduate degree; 26.9 had undergraduate degree, however, the participants with high school and diploma or associate degree in banking were 1.2 percent respectively. The majority of survey participants were operations managers with 60.3 percent, followed by branch managers with 37.9 percent and general managers with 1.5 percent. Lastly, 48.4 of the participant had less than 3-years work experience, 29.3 had 3-6; 15.2 had 7-10; 4.5 had more than 13 years and 2.7 had 11-13 years of work experience.

Table 1: Profile of the Participants

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>	292	87.2
Male	43	12.8
Female		
<b>Age</b>		
1 below 30 years	105	31.3
2 30-40	149	44.5
3 41-50	69	20.6
4 51-60	12	3.6
<b>Qualification</b>		
High School	04	1.2
Diploma or Associate Degree in Banking	04	1.2
Undergraduate Degree	90	26.9
Postgraduate Degree	237	70.7
<b>Job-Title</b>		
General Manager	05	1.5
Branch Manager	127	37.9
Operations Manager	202	60.3
<b>Experience</b>		
Less than 3 years	162	48.4
03-06	98	29.3
07-10	51	15.2
11-13	09	2.7
More than 13 years	15	4.5

### **Analysis and results**

The main objective of the present study was to assess the usefulness of organizational culture-scale (Denison, 2000) in the banking sector of Pakistan. For this reason, the present study adopted PLS-Path modeling for analyzing data through SmartPLS 3.0 (Ringle, Wende, & Becker, 2015). The usefulness of PLS path modeling has gained much popularity in the recent times (Hair et al., 2012; 2013; 2014) however, the effectiveness of this approach has also been recommended since long (*Refer for example* Wold, 1975). Besides that the present study employed PLS-SEM due to the fact that the objective of the present research was to test and validate the model (Henseler et al., 2009; Hair et al., 2012).

The objective of the study was to assess the psychometric properties of organizational culture-scale (Denison, 2000); hence, the PLS-Algorithm (Geladi & Kowalski, 1986) was employed to examine the individual item reliability, internal consistency reliability, convergent validity, and discriminant validity (Henseler et al., 2009). The results of the analysis are provided in Table 2 and Table subsequently.

Table 2: Results of the Confirmatory Factor Analysis

Code	Indicator	Loadings			
		Involvement	Consistency	Adaptability	Mission
OC1	Most employees are highly involved in their work.	0.828			
OC2	Decisions are usually made at the level where the best information is available.	0.758			
OC3	Information is widely shared so that everyone can get the information he or she needs when it's needed.	0.741			
OC4	Cooperation across different parts of the organization is actively encouraged.	0.828			
OC5	People work like they are part of a team.	0.758			
OC6	Work is organized so that each person can see the relationship between his or her job and the goals of the	0.741			
OC7	There is continuous investment in the skills of employees.	0.552			

OC8	Authority is delegated so that people can act on their own.	Item was deleted due to lower loadings			
OC9	The capabilities of people are viewed as an important source of competitive advantage.	Item was deleted due to lower loadings			
OC10	There is a clear and consistent set of values that governs the way we do business.		0.814		
OC11	There is a clear agreement about the right way and the wrong way to do things.		0.823		
OC12	It is easy to coordinate projects across different parts of the organization.		0.786		
OC13	There is good alignment of goals across levels.		0.539		
OC14	The leaders and managers "practice what they preach".	Item was deleted due to lower loadings			
OC15	There is a characteristic management style and a distinct set of management practices.	Item was deleted due to lower loadings			
OC16	People from different parts of the organization share a common perspective.	Item was deleted due to lower loadings			
OC17	There is a "strong" culture.	Item was deleted due to lower loadings			
OC18	It is easy to reach consensus, even on difficult issues.	Item was deleted due to lower loadings			
OC19	We respond well to competitors and other changes in the business environment.			0.795	

OC20	New and improved ways to do work are continually adopted.			0.795	
OC21	Different parts of the organization often cooperate to create change.			0.604	
OC22	Customer comments and recommendations often lead to changes.			0.682	
OC23	Customer input directly influences our decisions.			0.742	
OC24	We encourage direct contact with customers by our people.			0.732	
OC25	We view failure as an opportunity for learning and improvement.			0.712	
OC26	Learning is an important objective in our day-to-day work.			0.726	
OC27	We make certain that the "right hand knows what the left hand is doing".			0.626	
OC28	There is a clear mission that gives meaning and direction to our work.				0.850
OC29	There is a long-term purpose and direction.				0.727
OC30	Our strategy leads other organizations to change the way they compete in the industry.				0.850
OC31	Leaders set goals that are ambitious, but realistic.				0.722
OC32	We continuously track our progress against our stated goals.				0.707



OC33	People understand what needs to be done for us to succeed in the long run.				0.777
OC34	We have a shared vision of what the organization will be like in the future				0.711
OC35	Leaders have a long-term viewpoint.				0.708
OC36	We are able to meet short-term demands without compromising our long-term vision.				0.787
Composite Reliability		0.898	0.833	0.903	0.925
Average Variance Extracted		0.561	0.562	0.512	0.581

Source: Researcher

**Individual Item Reliability**

Aligned with the research objective it was essential to ascertain reliability of every item in the organizational culture-scale (Denison, 2000), therefore, the outer loadings were taken into account for determining individual item reliability. Following the guidelines forwarded by Hair et al., (2014) and Duarte and Raposo, (2010) the present study assessed individual item reliability by retaining items with .50 and above outer loadings.

The PLS-Algorithm revealed lower loadings of two-item below the threshold of involvement hence OC8 and OC9 were not retained (Refer Table 2) moreover the remaining 7-items of the involvement scale revealed sufficient loadings ranging from 0.55 to 0.82. Similarly, five-items of consistency scale had lower loadings (OC14, OC15, OC16, OC17, and OC18 – Table 2) and therefore were deleted from the scale; however, the loadings for the items of the consistency scale ranged from .53 to .82. Next, for adaptability scale all the 9-items had sufficient loadings ranging from .62 to .79 therefore all the items were retained (Refer Table 2). Similarly, the loadings for mission were also sufficiently above the threshold ranging from .78 to .85. Therefore, it could be concluded that all the retained items demonstrated individual item reliability for the present study.

**Internal Consistency Reliability**

It becomes mandatory that all the items on an individual scale (or sub scale) should measure the same concept (Bijttebier et al., 2000) for demonstrating internal consistency reliability. For measuring internal consistency reliability researchers in the past have employed Cronbach’s alpha and composite reliability (CR) estimates (Bacon et al., 1995; Peterson & Kim, 2013). Following the recommendations from the popular literature (*Refer for example* Bagozzi & Yi, 1988; Hair et al., 2011) the present study ascertained internal consistency reliability using composite reliability coefficient. The recommended threshold for each of the construct is 0.7 and above (Hair et al., 2011) referring to this, all the latent variables of the present study, have demonstrated sufficient internal consistency reliability as the CR values have ranged between 0.89 and 0.92 (*refer* Table 2).

**Convergent Validity**

According to Hair et al., (2006) the convergent validity refers to the extent to which items truly represent the intended latent constructs and correlate with other measures of the same latent construct. Furthermore, Chin, (1998) suggested the assessment of convergent validity using Average Variance Extracted (AVE) denominating 0.5 or above as a threshold. The average variance extracted for involvement, consistency, adaptability and mission were 0.56, 0.56, 0.51, and 0.58 respectively (*Refer Table 2*). Therefore, the reported average variance extracted has suggested that the present study has fulfilled the convergent validity criterion.

**Discriminant Validity**

Apart from above assessment, the popular literature has also suggested that the scholars should also report the discriminant validity. Addressing discriminant validity is critical as it refers to the extent to which a given variable varies from other latent variables (Duarte & Raposo, 2010). Furthermore, Fornell and Larcker, (1981) have grounded reliable guidelines to assess discriminant validity. According to them, the square root of AVE should be greater than the correlations among latent variables. Therefore, present study assessed discriminant validity following their guidelines and Table 3 presents the square root of average variable extracted (in the boldface values) and correlations among latent variables.

Table 3: Discriminant Validity

	1	2	3	4
Mission	<b>0.762</b>			
Adaptability	0.397	<b>0.715</b>		
Consistency	0.262	0.564	<b>0.749</b>	
Involvement	0.464	0.293	0.157	<b>0.749</b>

Source: Researcher

The assessment of Table 3 enables the researchers to conclude that the present study has effectively revealed the discriminant validity. Therefore, it could be forwarded that all the measures of organizational culture-scale (Denison, 2000) adopted in the present study have magnificently met the criterion for discriminant validity.

The popular literature has suggested the assessment of individual item reliability, internal consistency reliability, convergent validity and discriminant validity for responsible assessment of the psychometric properties of any measurement scale (Henseler et al., 2009). Therefore, for assessing organizational culture-scale (Denison, 2000) the present study followed these literature based recommendation and has effectively conceded these assessment criterions.

### **Discussion and conclusion**

The research contribution of Denison in extending knowledge and understanding of organizational culture is highly valued. One of the evidence for above argument is the development of organizational culture scale (Denison, 2000) for effectively assessing organizations. According to (Schein, 1990) the understanding of culture is essential critical for every type and size of organization. Thus, the pre-requisite for cultural understandings is its measurement. Secondly, as it has been viewed largely that cultural effectiveness lies on how strong the culture itself is (Deal & Kennedy, 1982) therefore, the present study attempted to contribute in the body of knowledge that how banking industry in Pakistan could and or should assess their respective cultures. Thirdly, the present stud also grounded this assessment due to the fact that the past research has heavily relied on Western perspective (O'Reilly et al., 1991; Denison & Mishra, 1995; Barney, 1986). Additionally, the assessment of Denison, (2000) scale for organizational culture in the Pakistani context was necessary due to the reason that the scale in original was developed to assess companies nominated in the Western cultures. Therefore, the assessment of organizational culture scale drawing upon the work of Denison, (2000) was carried out in this study in the baking industry of Pakistan.

The present study attempted to present empirical evidence pertaining to validity of organizational culture scale (Denison, 2000) in the banking industry of Pakistan. All the constructs under investigation have empirically fulfilled the criterion and the results have suggested that the Denison's, (2000) scale for measuring organizational culture would be an appropriate choice for the researchers and academicians in Pakistan. As mentioned above, the present assessment of this scale provides evidence in the Pakistan's perspective and it adds value in the robustness of this measurement scale. The results of the confirmatory factor analysis, reliability and validity of measures have also suggested the proposed claim of the study.

Although because of the time and cost related limitations, the same for this study was restricted up to 335 and was also restricted to one province of the country therefore we forward this recommendation that the future researchers may further this assessment with a

relatively larger sample in the same or other industries of Pakistan. The future researchers might also use a sample from multiple industries to further strengthen this assessment.

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