

# Measuring employee engagement and a seven-factor model of work systems in Australia, the USA and China

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## Abstract

The present study tested for stability of a measure of employee engagement and a seven-factor model of work systems across diverse national cultures. Using a sample of 369 USA and 416 Chinese employees, the study explored cross-cultural differences in the factor structure of the Voice Climate Survey - an employee opinion survey developed in Australia that measures employee engagement and a range of other work practices and outcomes. The measure of employee engagement showed acceptable stability across cultures. While demonstrating moderate fit of the data, confirmatory factor analyses revealed that neither the USA nor the Chinese data fit the seven-factor model as well as the original, predominately Australian, sample. As expected, differences between the Chinese and USA data were found, such that the USA data showed better fit than did the Chinese data. These results support the findings of existing cross-cultural research highlighting the cultural similarity between Australia and the USA, both being individualistic and small power distance cultures. A consideration for the survey includes refining the content for use in organisations based outside of Australia, particularly for less culturally similar countries such as China that are characterised by collectivistic and large power distance cultures.

## Introduction

This article examines the extent to which the higher-order factor structure of the Voice Climate Survey (VCS) can be generalised across diverse national cultures. The factor structure of the VCS, which was tested on a predominately Australian sample, is examined in the present study across a sample of USA and Chinese national employees. These two countries were selected because they are traditionally viewed as being different to each other in terms of their cultural norms (Hofstede, 1980).

The VCS is an employee opinion survey that measures several work practices and outcomes. The survey, which comprises of 102 items, was developed over many years of research and refinement. A unique attribute of the survey is that it has a two-tiered factor structure. That is, it assesses 31 lower-order factors and

7 higher-order factors, the latter of which are also referred to as “work systems”. In his article examining the psychometric properties of the VCS, Langford (2006) called for future research to validate the factor structure of the VCS in other Western and non-Western, individualistic and collectivist cultures. Given the growing call for the investigation of a smaller set of high-order categories that can be used to group work practices (e.g., Huselid, 1995; van den Berg & Wilderom, 2004) and the recent empirical development of such a model (Langford, 2006), the present study will focus on validating the higher-order seven-factor model of work systems across the different cultures.

## Work Systems

Researchers in the area of employee opinion and organisational climate have recognised the need to categorise survey scales into a simpler, higher-order set of work systems (e.g., Huselid, 1995; van den Berg & Wilderom, 2004). Langford (2006) argued that identifying such systems could help to integrate existing research and provide a common language and structure to guide future research, much in the same way that Hofstede’s dimensions of national culture and the Big Five personality characteristics, advanced research in their respective fields.

In his study of the psychometric properties of the VCS, Langford (2006) found evidence for the following 7 work systems: Purpose (including lower-order factors such as direction, mission and values, and role clarity), Property (including resources, technology and facilities), Participation (including employee involvement, recognition and development), People (teamwork, talent, motivation and initiative), Peace (wellness and work/life balance), Progress (achieving company objectives, successful change and innovation, and satisfied customers) and Passion (organisation commitment, job satisfaction and intention to stay). The latter work system, Passion, represents the construct of *employee engagement*, which is currently a popular construct amongst practitioners. The term ‘passion’ was used by Langford to keep a consistent nomenclature with the other work systems presented.

## Employee Engagement

The construct of employee engagement has developed a strong practitioner following. However, despite its substantial popularity in management practice, the construct has only recently gained the attention of researchers. Past research into organisational outcomes has focused primarily on constructs such as job satisfaction, organisational commitment or turnover. These measures have traditionally been considered independently of each other (e.g., Trimble, 2006). According to Langford (2006), the term employee engagement can be used to provide an umbrella construct that captures a broader range of employee perceptions and predicts a greater percentage of variance in organisational outcomes than the previously mentioned constructs considered alone.

In his study, Langford (2006) presented empirical support for a psychometrically sound 10-item measure of employee engagement, which considered job satisfaction, organisational commitment and intention to stay together. The present study contributes to thought and practice in relation to employee engagement by examining the generalisability of Langford's Passion measure across two diverse national cultures. Evidence for the stability of the measure will have important ramifications for research and practice in relation to employee engagement. Hence, the current study poses the following research question. Does the VCS measure of employee engagement (measured in a predominately Australian employee sample) demonstrate acceptable stability across USA and Chinese employee samples?

## Cultural Orientations

Researchers and practitioners have come to realise that the generalisation of management practices established in the context of Western cultures may not necessarily be effective in other cultural contexts. In fact, a significant amount of research has been devoted to the identification of dimensions upon which cultures differ (Aycaan, Kanungo, Mendonca, Yu, Deller, Stahl & Kurshid, 2000). Hofstede's (1980) study of cultural differences amongst IBM employees in 40 countries established the empirical origins for two dimensions of national culture, namely *individualism-collectivism* and *power distance* (Schermerhorn & Bond, 1997). Hofstede's research has since had a dominant influence on both cross-cultural research and international business practice.

**The Individualism/Collectivism Dimension** Ali, Lee, Hsieh & Krishnan (2005), argue that the study of the individualism/collectivism (I/C) dimension provides valuable insight into cultural differences and orientations. They assert that the I/C dimension is the

most important factor in the study of cultural differences, given its value in helping to understand the variability in the behaviour of individuals and groups across different countries. According to their article, *individualism* is asserted to be predominant in Western and developed countries. On the other hand, *collectivism* tends to prevail in Eastern and developing countries.

Research on the I/C dimension defines individualism as the embedded preference of a culture for self-interest over group-interest. Broadly speaking, individualist cultures prefer a society in which people take care of themselves and their immediate families only. Individualists tend to be more preoccupied with pursuing individual goals and activities that optimise personal gain and satisfaction. Behaviours promoted by individualist cultures include assertiveness, independence, and privacy (Ali et al, 2005; Bassett, 2004; Hofstede, 1980; Schermerhorn & Bond, 1997). Collectivism is where a preference exists for a close-knit social framework, whereby individuals can expect their relatives, company or other in-group members to look after them in exchange for loyalty (Hofstede, 1980; Ibarra, 1996; Schermerhorn & Bond, 1997). According to Ali et al (2005), people in collectivist cultures and organisations spend a significant amount of time getting to know those around them and place a great deal of importance on social relationships. People tend to conform to primary group beliefs and norms, while striving to sustain in-group relationships. As a result, behaviours that are predominant in collectivist cultures include compliance, obedience and responsibility.

**The Power Distance Dimension** Power Distance concerns the extent to which status, hierarchy and power inequality exist and are accepted in different cultures (Aycaan et al, 2000). In large power distance cultures, status differences are viewed as legitimate. Members of large power distance cultures are more likely to be comfortable with, and accepting of, structured authority in organisations. In small power distance cultures, a hierarchical relationship is simply established for convenience. Managers in small power distance cultures are more inclined to encourage input from their employees. In turn, employees are more willing to express their views openly and challenge managerial decisions (Ibarra, 1996; Schermerhorn & Bond, 1997).

**Cultural Differences in Hofstede's Dimensions** In his study, Hofstede (1980) found a strong correlation between the I/C dimension and power distance. He found that countries with an individualist orientation, tended to be characterised by small power distance, whereas collectivist countries were mostly characterised

by large power distance. This is also the case for the countries that were included in the present study (i.e., Australia, the USA and China).

In his study, Hofstede (1980) found that Australian and United States employees scored almost identical on both the I/C and Power Distance dimensions. That is, they were both characterised by high individualism and small-to-medium power distance. Hence, it is asserted that Australia and the USA have a high-degree of cultural similarity. Unfortunately, China was not included as one of the 40 countries in Hofstede's research. However, Hofstede (1980) discovered that Hong Kong, Singapore and Taiwan (all of which are South-East Asian countries with varying degrees of Chinese influence) were characterised by low individualism and large power distance. More recently, empirical research has confirmed that China is in fact distinguished by low individualism and large power distance (Ayca et al, 2000; Scott, Bishop & Chen, 2003). Hence, it can be asserted that China has a high degree of cultural difference to both Australia and the USA.

Given the high degree of cultural similarity between Australia and the USA, it is expected that the VCS (which was developed across a predominately Australian sample) will maintain a stable high-level factor structure when tested amongst USA employees.

H1: The established seven-factor structure of the Voice Climate Survey will demonstrate stability across a sample of USA employees.

Given the high degree of difference between Australian and Chinese cultures, it is expected that the high-level factor structure of the VCS may differ when examined amongst Chinese employees.

H2: The established seven-factor structure of the Voice Climate Survey may differ when tested in a sample of Chinese employees.

## Method

### Participants

The original research data was collected from 2003 through to 2006 from 13,729 employees from 1,279 business units from approximately 1000 organisations (the exact number of different organisations is not known because organisations were given the option of anonymous participation and identifying information was not kept by the research assistants). The majority of employees and participating organisations were based in Australia. However, 2019 employees from 171 of the organisations were based outside of Australia. From these countries, the USA (n=369) and Chinese (n=416)

individual employee samples were deemed large enough to include in the present study for the purposes of a cross-cultural comparative analysis. It is important to acknowledge that the data from these two country samples were included in the original research, but represented a small percentage of the total sample. Hence, the two data sets were not entirely independent. Participation was voluntary, with consent required from the manager of a business unit prior to data collection from that manager and their employees.

### Measures

**Voice Climate Survey** For complete details on the development of the VCS, please refer to Langford's (2006) study on the psychometric properties of the survey. Employees took an average of 15 minutes to complete the items, all of which were measured on a 5-point rating scale ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree", with an additional option of "Don't Know/Not Applicable" (responses to which were treated as missing).

## Results

### Levels of Analysis

Data was collected at both the individual employee and business unit level. However, factor analyses in the present study were conducted at the individual employee level, because all required data was based on employee perceptions and available from all participating employees.

### Factor Analyses

To examine Research Question 1, confirmatory factor analyses (CFAs) were conducted on the VCS measure of Passion. Across both the USA and Chinese samples, the regression weights for the three subscales of Passion (organisation commitment, job satisfaction, and intention to stay) were satisfactory (see Table 1). Thus, in response to Research Question 1, the VCS measure of Passion demonstrated acceptable stability across the USA and Chinese samples.

The stability of the higher-order factor structure of the VCS across the two country samples was also examined using CFAs. As demonstrated in Table 1, the CFAs showed acceptable regression weights and fit statistics. The chi-squared tests were significant and the CFI, NFI, TLI and RMSR were all satisfactory across the two samples. Inspection of the modification indices for the USA and Chinese samples suggested that the proposed allocation of lower order factors to higher order factors was the most efficient. These results confirmed hypothesis 1, that the factor structure of the VCS would remain stable across a sample of USA employees. However, hypothesis 2 was not supported

given that the factor structure also demonstrated acceptable stability in the Chinese sample. Despite this, the CFI, NFI, TLI and RMSR were all slightly more favourable in the USA sample than in the Chinese sample. Thus, the USA data provided a slightly better fit to the original model (measured in a predominantly Australian sample) than did the Chinese data.

### Discussion

The purpose of the present study was to examine the stability of the VCS seven-factor model of work systems and the VCS measure of Passion across diverse national cultures. The results demonstrated that the seven-factor model remained stable when tested amongst both USA and Chinese employees. Similarly, the measure of Passion demonstrated satisfactory stability across both countries. Given these findings, a strong argument can be made for the applicability and further widespread use of the Passion measure and the seven-factor model of work systems in these, and indeed other, Western and non-Western cultures.

The findings in relation to employee engagement have important ramifications for future research and practice. In his paper on the psychometric properties of the VCS, Langford (2006) noted that the VCS measure of employee engagement was freely available to university-based researchers involved in non-profit research. Continued use of the employee engagement measure across different cultures will facilitate the expansion of an international research database. This should in turn facilitate further cross-cultural research and enable researchers to entice organisations to become involved in research by offering comparative cross-cultural benchmarking of their results.

Beyond the psychometric properties of the VCS, the findings provide empirical support for the generalisation of the concept of employee engagement from Western cultures to other cultural contexts. The findings suggest that the concept of employee engagement is just as relevant in individualist and small power distance cultures (such as Australia and the USA) as it is in collectivist and large power distance cultures (such as China). These findings dispute research suggesting that the generalisation of management practices established in the context of Western cultures may not necessarily be effective in other cultural contexts (Aycaan et al, 2000).

While the seven-factor model of work systems remained stable across both countries, the USA data showed a better fit to the original model (which was tested in a predominately Australian sample) than did the Chinese data. These findings are consistent with Hofstede's (1980) research on *cultural dimensions*, which demonstrate that Australia is more culturally similar to the USA than to China. Nevertheless, given that the Chinese data showed an acceptable fit to the

Table 1: Voice Climate Survey higher-order factor loadings, regression weights and fit statistics from confirmatory factor analyses.

Higher Order Factors	Lower Order Factors	CFA USA	CFA China	
Purpose	Organisation	.74	.62	
	Direction			
	Results Focus	.71	.53	
	Mission & Values	.75	.61	
	Ethics	.73	.66	
	Role Clarity	.62	.67	
	Diversity	.67	.60	
	Property	Resources	.73	.65
		Processes	.75	.68
		Technology	.65	.52
Participation	Safety	.59	.63	
	Facilities	.44	.58	
	Leadership	.80	.56	
	Recruitment & Selection	.73	.59	
	Cross-Unit Cooperation	.73	.44	
	Learning & Development	.67	.63	
	Involvement	.71	.61	
	Reward & Recognition	.72	.64	
	Performance Appraisal	.63	.70	
	Supervision	.66	.71	
People	Career Opportunities	.67	.63	
	Motivation & Initiative	.72	.65	
	Talent	.93	.84	
	Teamwork	.81	.74	
Peace	Wellness	.96	.78	
	Work/Life Balance	.66	.59	
Progress	Change & Innovation	.82	.70	
	Organisation Objectives	.79	.75	
	Customer Satisfaction	.83	.62	
	Organisation Commitment	.89	.82	
	Job Satisfaction	.80	.69	
Passion (Employee Engagement)	Intention To Stay	.72	.68	
	Average Factor Loading	.73	.65	
	Chi-squared	1295	1286	
	Degrees of freedom	413	413	
	Chi-squared p value	.00	.00	
	CFI	.87	.85	
	NFI	.82	.79	
	TLI	.86	.83	
	Standardised RMSR	.05	.06	

original data, extensive changes to the VCS survey content are not necessary to enable use of the survey in Chinese contexts. However, researchers and practitioners may consider minor revisions to improve the cultural relevance of the existing model in such contexts. For example, the existing wording of survey items could be modified, particularly for those items underpinning lower-order factors that elicited low regression weights (e.g., cross-unit cooperation and technology) in the CFA for China.

### Limitations and Directions for Future Research

The present study contains some limitations that should be addressed by future studies. Firstly, the data from the Chinese and USA samples were included in the original research. Hence, the two data sets were not entirely independent. However, the samples represented a very small percentage of the predominantly Australian sample. Second, common method variance may have inflated the relationships between the measured variables. It is acknowledged that the need for participants to respond consistently may have inflated the correlations between variables. However, Spector (2006) presented evidence that the impact of common method variance may in fact be much less than we are currently led to believe. Finally, Langford, Parkes and Metcalf (2006) extended this research by examining the inter-relationships between the higher-order work systems in the predominately Australia sample. Future cross-cultural research on the VCS would benefit from examining the extent to which the structural equation model presented in Langford (2006) can be generalised across diverse national cultures.

Despite these limitations, this study has provided a significant contribution to research on organisational climate and culture. Empirical support has been provided for the generalisation of a model of work systems established in the context of a Western culture to be used in other non-Western cultural contexts. It is hoped that the seven-factor model can be used to guide future research on this topic, much in the same way that Hofstede's dimensions of national culture and the Big Five personality characteristics, initiated research in their respective fields.

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