

Table 1: Example items and Cronbach Alpha values for experientialism subscales.

Subscale	Example item	N of items	Alpha
Experiential preference	"I prefer to do something than to have something"	12	.82
Experiential eagerness	"I like to have a go at everything"	7	.80
Experiential aspiration	"I wish I could afford to spend more money on experiences"	4	.78
Experiential importance	"Experiences form a fundamental part of living"	8	.72
Experiential worth	"I am glad for all the experiences I have had both good and bad"	4	.57

Table 2: Experientialism subscales correlations with other variables.

	Exp preference	Exp eagerness	Exp aspiration	Exp importance	Exp optimism	Exp total
Materialism	-.60**	.07	.28**	-.20**	-.12	-.31**
Sensation seeking	.26**	.50**	.22**	.31**	.17*	.48**
Intrinsic motivation	.54**	.37**	.11	.41**	.16*	.58**
Openness	.30**	.16*	-.09	.23**	.01	.25**
Social desirability	-.09	-.17*	.11	-.07	-.15*	-.013
Life satisfaction	.11*	.19**	-.18*	.24**	.34**	.24**
Self efficacy	.26**	.37**	.07	.41**	.26**	.44**
Self esteem	.08	.26**	-.01	.22**	.28**	.23**

## Study 2: Discussion

This study found that the Experientialism Scale showed promise as a valid and reliable measure. It had acceptable level of reliability and its divergent and convergent relationships with other variables provide evidence for construct validity. Criterion validity was also found in its relationship with life satisfaction, self efficacy and self esteem. Due to the preliminary nature of the scale however, further investigations are needed to confirm its reliability and validity.

## References

- Bandura, A. (1986). *Social foundations of thought and action*. Upper Saddle River, NJ: Prentice Hall.
- Loewenstein, G. (1987). Anticipation and the valuation of delayed consumption. *Economic Journal*, 97, 666-684.
- Loewenstein, G., & Thaler, R. H. (1989). Intertemporal choice. *Journal of Economic Perspectives*, 3, 181-193.
- Vroom, V. H. (1964). *Work and motivation*. New York: Wiley.

## Psychometric Support for a "Five-Minute" Measure of a Seven-Factor Model of Work Systems

Peter H. Langford (peter.langford@mq.edu.au)

Voice Project, Department of Psychology  
Macquarie University, Sydney NSW 2109 Australia

### Abstract

Previous work by the current author has demonstrated psychometric support for a 102-item employee survey – the Voice Climate Survey (VCS) – measuring 31 lower-order work practices and outcomes that aggregate into seven higher-order work systems. A structural equation model involving the seven higher-order work systems has previously demonstrated good fit indices. The current study builds upon this previous research by presenting support for a shorter "five minute" version of the VCS designed to provide a more efficient measure of the seven higher-order work systems. Psychometric support for the short version of the survey is shown through confirmatory factor analysis. As has been shown previously for the full-length survey, external validation is demonstrated by linking scores from the short version of the survey with independent manager reports of turnover, absenteeism, productivity, health and safety, goal attainment, financial performance, change management, innovation and customer satisfaction. Comparisons between the psychometrics and applications of the short and long version of the survey are discussed.

### Introduction

Diagnosing and improving organisational culture is widely recognised by researchers and practitioners as important for maximising employee engagement and organisational performance. Employee surveys are one of the most common methods of measuring organisational culture (Kraut, 2006). In developing employee surveys, much attention is naturally given to the reliability and validity of the tools. Nevertheless, another critical measure of the effectiveness of an employee survey is its efficiency, as indicated by its length and the time taken for it to be completed.

Based on data from 13,729 employees from 1,279 business units, Langford (2007) presented psychometric support for a 102-item employee survey – the Voice Climate Survey (VCS)<sup>1</sup>. The VCS measured 31 lower-

<sup>1</sup> The Voice Climate Survey and Voice Pulse Survey presented in this paper are copyrighted by Access Macquarie Limited, the commercial arm of Macquarie University. University researchers involved in non-fee-generating research can use the tools without seeking permission from the author. For all other enquiries or to have data benchmarked against the existing database contact the author.

order work practices and outcomes that aggregated into seven higher-order work systems. External validation of the tool was demonstrated by linking scores from the VCS with independent manager reports of turnover, absenteeism, productivity, health and safety, goal attainment, financial performance, change management, innovation and customer satisfaction. The reliability and validity of the VCS compared favourably with alternative existing measures. Finally, Langford, Parkes and Metcalf (2006) presented a structural equation model of organisational performance, based on data collected using the VCS. The model provided empirical support for the drivers of employee engagement and more objective measures of organisational performance.

### Pulse Surveys

The 102-item VCS takes an average of 15 minutes to complete. Such tools are often combined with other measures (assessing, perhaps, organisational values), demographic questions (such as gender, tenure, occupational category) and open-ended questions (collecting qualitative information to complement the quantitative data from the rating-scale questions). In total, the completion of such a survey could take 30 minutes or more, which may prove prohibitive to a researcher or manager.

In a drive for efficient delivery, increasingly popular among practitioners are "pulse" surveys (Colihan & Waclawski, 2006). Whereas full-length surveys aim to provide measurement that is both broad and deep, pulse surveys are intended to provide a deep-and-focused diagnosis (e.g., multiple questions about a specific management practice such as performance appraisal) or a shallow-and-broad diagnosis (e.g., several human resource management practices each measured with a single item). Many organisations are using pulse surveys as interim measures, implemented between multiple uses of a full-length survey. Full-length surveys are often implemented every one or two years. In contrast, some organisations are using pulse surveys every half-year or quarter. Using the medical analogy from which the name derives, a full-length survey can be likened to a full medical examination, whereas a pulse survey provides a briefer but more rapid insight into the health of an organisation.

Colihan and Wacławski (2006) provide one of the few scientific reviews of the use of pulse surveys. Despite common use of the term among human resource management practitioners, very little published research is available. They report a search of the American Psychological Association's PsychINFO database conducted in September 2004 which produced no relevant journal articles with the term "pulse survey". A matching search by the current author in March 2007 also found no articles. An equivalent search in EBSCO Host's Business Search Premier by the current author in March 2007, found no peer-reviewed articles in academic journals, and only 66 articles when the search was widened to include all forms of professional publications including trade magazines and newsletters.

### Work Systems

As described in some detail in Langford (2007), there has been a growing call for the investigation of a small set of higher-order factors that can be used to group work practices and enable comparison across studies (e.g., Huselid, 1995; Niehaus & Swiercz, 1996; Parker et al., 2003; Pfeffer, 1998; Tomer, 2001; van den Berg & Wilderom, 2004). Following Huselid, the current paper uses *systems* to refer to groups of work practices.

Early researchers were consistently unsuccessful in finding higher-order work systems (Delaney & Huselid, 1996; Den Hartog & Verberg, 2004; Guest, 1997; Guest, Conway & Dewe, 2004; Huselid, 1995; MacDuffie, 1995; Patterson, et al., 2005). However, Langford (2007) showed that the 31 lower-order practices and outcomes measured by the VCS aggregated into seven higher-order work systems labeled as Purpose (including lower-order factors such as direction, ethics and role clarity), Property (including resources, facilities and technology), Participation (including employee involvement, recognition and development), People (teamwork, talent, motivation and initiative), Peace (wellness and work/life balance), Progress (achieving objectives, successful change and innovation, and satisfied customers) and Passion (representing the construct of employee engagement currently popular among practitioners, incorporating subscales of organization commitment, job satisfaction and intention to stay).

### Pulse Survey of Work Systems

The purpose of the present study was to develop a shorter "pulse" version of the VCS (hereafter called Voice Pulse Survey, VPS). The goal was to establish a more efficient (in terms of completion time) measure of the seven above-mentioned work systems, while minimising the loss of reliability and validity in comparison with the full-length version of the survey.

The purpose of the VCS was to provide a measure of a broad range of management practices and outcomes. As such, the goal for the current study was to develop an equally broad measure and achieve brevity by sacrificing depth. To maximise breadth, it was decided to develop a 31-item pulse measure with each lower-order management practice from the VCS represented by a single item in the VPS. It was expected that the 31 items would provide a robust measure of the seven higher-order work systems.

## Method

### Participants

The current study drew upon the same database used for the development of the full-length Voice Climate Survey (Langford, 2007). That database represented 13,729 employees from 1,279 business units from approximately 1,000 organisations. The organisations were predominantly based in Australia although many were Australian operations of multinational corporations. The organisations represent a wide range of industries and sizes (see Langford, 2007, for more details about the sample).

It is acknowledged that it is not ideal to develop the VPS using data previously used to develop the full VCS. One risk is that any eccentricities in the original data sample that shaped the original VCS will also be present in the development of the VPS. Another limitation of using the same data is that the 31 items that are selected for the VPS will have been administered among the full list of 102 VCS items and not as an independent set of 31 items. It is possible that the context and ordering of the full set of 102 items resulted in the items being interpreted in a way that may differ to how they would be interpreted if they were completed on their own. Thus, the results presented here for the VPS should be regarded as preliminary and needing confirmation in subsequent studies.

### Measures

The full-length VCS was used as a starting point for developing the VPS. For psychometrics of the VCS, see Langford (2007). All answers were provided 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).

To evaluate the criterion-related validity of the VPS, data was collected from managers in participating business units. These managers reported the following: (1) percentage voluntary employee turnover for the participating business unit and for the wider organisation, (2) percentage employee absenteeism for the participating business unit and for the wider

organisation, (3) rating of employee productivity for the business and organisation on a 5-point scale ranging from 1 = "Very Poor" to 5 = "Excellent", (4) rating of health and safety for the business unit and organisation on a 5-point scale ranging from 1 = "Very Poor" to 5 = "Excellent", (5) rating of progress against organisational goals on a 5-point rating scale from 1 = "Goals were substantially missed" to 5 = "Goals were substantially exceeded", (6) rating of the organisation's financial performance on two 5-point rating scales, the first ranging from 1 = "There was a substantial loss/deficit" to 5 = "There was a substantial profit/surplus", and the second ranging from 1 = "Substantially worse than the previous year" to 5 = "Substantially better than the previous year", and finally (7) managers completed the Progress items in the VCS, providing scores on Organisation Objectives, Change & Innovation, and Customer Satisfaction.

Standardised scores for all of the above data from each manager were averaged to create an overall Composite Performance score for each business unit.

### Analyses

Analyses involving Composite Performance were conducted using business-unit-level data. All other analyses were conducted using employee scores.

**Determining Content of the VPS** There were two primary goals in the development of the VPS. First, given the VPS was being designed as an efficient measure of the seven higher-order work systems, it was important to choose items that best represented the higher-order systems. This characteristic was assessed by correlating item scores with system scores.

Second, like the VCS, a primary purpose of the VPS was to predict organisational outcomes. Hence, it was important to choose items that showed the strongest relationship with manager reports of organisational performance. This characteristic was assessed by correlating items with Composite Performance scores.

The final set of VPS items was determined by taking an item within each lower-order practice that scored highest on the above measures, calculated by averaging standard scores for each of the above statistics.

**Comparing the VPS and VCS** The criterion-related validities of the VPS and VCS were compared through the following series of regressions: (1) regressing the measure of Passion (representing employee engagement) on the remaining higher-order factors (Purpose, Property, Participation, People, Peace and Progress), (2) regressing Progress on the remaining higher-order factors, and (3) regressing Composite Performance on all seven higher-order systems.

## Results

Table 1 shows the 31 items that, on average, best represented their higher-order factor and best predicted Composite Performance. All system alphas are acceptable with the one exception of the two-item system of Peace with an alpha of .53.

Solid fit statistics were found for the 31 items loading on the seven systems. Given the large sample, it is unsurprising that the chi-squared test was significant (chi-squared = 11089, df = 413,  $p < .01$ ). However, the CFI, NFI, TLI and RMSR were all satisfactory (.93, .93, .92 and .03 respectively). Indeed, these fit statistics were stronger than the fit statistics reported in Langford (2007) when examining lower-order practices loading on the higher-order systems for the full VCS.

Table 2 shows the multiple correlation (R) values when using the VCS and VPS to predict Passion, Progress and Composite Performance. These R values show the number of standard units the outcomes would change if the predictors changed one standard unit. Using all 102 VCS items, the R values are .76, .81 and .53 respectively, whereas when using the 31 VPS items, the equivalent values are .70, .75 and .45, showing only a small drop in criterion-related validity. When using systems as predictors, the VPS (R = .68, .74 and .42 respectively) shows only marginally lower validity than the VCS (R = .70, .79 and .42).

## Discussion

The aim of this study was to develop a shortened version of the VCS to give practitioners and researchers a more efficient, shallow-and-broad measure of work systems. Items were chosen that met the dual goals of (1) providing a psychometrically robust measure of the seven systems, and (2) maximising the ability of the VPS to predict desired outcomes.

Regarding the internal psychometric qualities of the VPS, sound fit statistics were demonstrated. Alphas for all seven systems within the VPS were acceptable with the one exception of the Peace system. It is quite possible that the poor alpha is a result of only two items being used to represent this system. Paunonen and Jackson (1985), Peterson (1994) and Langford (2003) have shown that the marginal value of adding items to scales is substantial until the scale has three to four items, after which improvements in alphas show a sharp reduction. Hence, there may be benefit in expanding the Peace system to incorporate at least an additional item. Unpublished preliminary research by the author has investigated a three-item lower-order scale for

Table 1: Voice Pulse Survey © items and associated practices and systems, with alphas for systems and regression weights for items.

Higher-order system	VCS lower-order practice	Item	CFA	
Purpose (alpha = .77)	Organisation Direction	I am aware of the values of this organisation	0.63	
		Results Focus	This organisation has a strong focus on achieving positive results	0.58
	Mission & Values	Ethics	I believe in the values of this organisation	0.70
		Ethics	This organisation is ethical	0.65
		Role Clarity	I understand how my job contributes to the overall success of this organisation	0.52
Property (alpha = .73)	Diversity	There is equal opportunity for all staff in this organisation	0.57	
		Resources	I have easy access to all the information I need to do my job well	0.64
	Processes	Our policies and procedures are efficient and well-designed	0.65	
		Technology	This organisation makes good use of technology	0.59
		Safety	Keeping high levels of health and safety is a priority of this organisation	0.57
	Facilities	The buildings, grounds and facilities I use are in good condition	0.50	
		Participation (alpha = .86)	Leadership	Senior management are good role models for staff
Recruitment & Selection	Managers in this organisation know the benefits of employing the right people		0.63	
People (alpha = .77)	Cross-Unit Cooperation	Knowledge and information are shared throughout this organisation	0.63	
		Learning & Development	There is a commitment to ongoing training and development of staff	0.63
	Involvement	I am consulted before decisions that affect me are made	0.63	
		Rewards & Recognition	The rewards and recognition I receive from this job are fair	0.66
		Performance Appraisal	The way my performance is evaluated provides me with clear guidelines for improvement	0.63
	Supervision	I have confidence in the ability of my manager	0.62	
		Career Opportunities	I am given opportunities to develop skills needed for career progression	0.62
	Motivation & Initiative	My co-workers put in extra effort whenever necessary	0.71	
		Talent	My co-workers are productive in their jobs	0.79
		Teamwork	My co-workers give me help and support	0.68
Peace (alpha = .53)	Wellness	I feel emotionally well at work	0.81	
	Work/Life Balance	I am able to stay involved in non-work interests and activities	0.45	
Progress (alpha = .75)	Organisation Objectives	The future for this organisation is positive	0.70	
		Change & Innovation	This organisation is good at learning from its mistakes and successes	0.73
	Customer Satisfaction	This organisation understands the needs of its customers	0.69	
Passion (alpha = .76)	Organisation Commitment	I am proud to tell people that I work for this organisation	0.78	
		Job Satisfaction	Overall, I am satisfied with my job	0.77
	Intention To Stay	I would like to still be working in this organisation in five years time	0.62	

© The Voice Climate Survey and Voice Pulse Survey are copyrighted. Please see the footnote on the first page of this paper regarding conditions of use.

Table 2: R values when regressing outcomes on the VCS and VPS.

Predictors	Outcomes		
	Passion	Progress	Composite performance
VCS 102 Items	.76	.81	.53
VCS 31 Practices	.74	.81	.47
VCS 7 Systems	.70	.79	.42
VPS 31 Items	.70	.75	.45
VPS 7 Systems	.68	.74	.42

Flexibility which loads on the Peace system in the full VCS. Within this scale, analyses suggest the item "This organisation has enough flexible work arrangements to meet my needs" might be the best candidate for inclusion in the VPS. When included with the other two Peace items in the VPS, the alpha is lifted to .63. Improving the alpha for the Peace system in the VPS should be a goal during further development of the VPS. In the absence of further evidence, the author recommends inclusion of the above provisional item to expand the Peace system to include three items.

The second goal of this study was to develop a measure of the seven systems with minimal loss of criterion-related validity. Results in Table 2 show that this goal was achieved with only small differences in the multiple correlation values produced when using the VCS and VPS to predict the measures of Passion, Progress and Composite Performance. Reductions in validity ranged from R = .00 to .08. There are likely to be many circumstances when practitioners and researchers would accept such a loss in validity given that the length of the VPS is less than one third of the VCS and the completion time is reduced from approximately 15 minutes for the VCS to less than 5 minutes for the VPS.

While these findings are encouraging, there is a clear need to confirm the findings. This study used the same dataset to develop the VPS as was used to develop the original VCS. The dataset is large (13,729 employees from 1,279) and covers a broad range of industries, occupations, and age groups that broadly mirror the Australian economy (for more details see Langford, 2007). Nevertheless, some caution should be taken until the VPS has demonstrated consistently strong psychometric qualities in future studies.

### References

Colihan, J., & Waclawski, J. (2006). Pulse surveys: A limited approach with some unique advantages. In A. I. Kraut (Ed.), *Getting action from organizational surveys* (pp. 264-293). San Francisco, CA: Jossey-Bass.

Delaney, J. T., & Huselid, M. A. (1996). The impact of human resource management practices on perceptions of organizational performance. *Academy of Management Journal*, 39, 949-969.

Den Hartog, D. N., & Verberg, R. M. (2004). High performance work systems, organizational culture and firm effectiveness. *Human Resource Management Journal*, 14, 55-78.

Guest, D. E. (1997). Human resource management and performance: A review and research agenda. *International Journal of Human Resource Management*, 8, 263-276.

Guest, D., Conway, N., & Dewe, P. (2004). Using sequential tree analysis to search for 'bundles' of HR

practices. *Human Resource Management Journal*, 14, 79-96.

Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38, 635-672.

Kraut, A. I. (2006). *Getting action from organizational surveys*. San Francisco, CA: Jossey-Bass.

Langford (2007). *Psychometrics of the Voice Climate Survey: Evidence for a lower and higher-order factor structure of work practices and outcomes*. Manuscript submitted for publication. Macquarie University.

Langford, P. H. (2003). A one-minute measure of the Big Five? Evaluating and extending Shafer's (1999a) Big Five markers. *Personality and Individual Differences*, 35, 1127-1140.

Langford, P. H., Parkes, L. P., & Metcalf, L. (2006). Developing a structural equation model of organisational performance and employee engagement. *Proceedings of the Joint Conference of the Australian Psychological Society and the New Zealand Psychological Society*, Auckland.

MacDuffie, J. P. (1995). Human resource bundles and manufacturing performance: Organizational logic and flexible production systems in the world auto industry. *Industrial and Labor Relations Review*, 48, 197-221.

Nichaus, R., & Swiercz, P. M. (1996). Do HR systems affect the bottom line? We have the answer. *Human Resource Planning*, 19, 61-63.

Parker, C. P., Baltes, B. B., Young, S. A., Huff, J. W., Altmann, R. A., Lacost, H. A., & Roberts, J. E. (2003). Relationships between psychological climate perceptions and work outcomes: A meta-analytic review. *Journal of Organizational Behavior*, 24, 389-416.

Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., Robinson, D. L., & Wallace, A. M. (2005). Validating the organizational climate measure: Links to managerial practices, productivity and innovation. *Journal of Organizational Behavior*, 26, 379-408.

Paunonen, S. V., & Jackson, D. N. (1985). The validity of formal and informal personality assessments. *Journal of Research in Personality*, 19, 331-342.

Peterson, R. A. (1994). A meta-analysis of Cronbach's coefficient alpha. *Journal of Consumer Research*, 21, 381-391.

Pfeffer, J. (1998). *The human equation: Building profits by putting people first*. Boston: Harvard Business School Press.

van den Berg, P. T., & Wilderom, C. P. M. (2004). Defining, measuring and comparing organizational cultures. *Applied Psychology: An International Review*, 53, 570-582.

**Better Work. Better Organisations. Better World.**

**Conference Proceedings**

**7<sup>th</sup> Industrial and Organisational Psychology Conference/  
1<sup>st</sup> Asia Pacific Congress on Work and Organisational Psychology**

**Editors**

Associate Professor Maureen Dollard, University of South Australia

Professor Tony Winefield, University of South Australia

Dr Michelle Tuckey, University of South Australia

Dr Peter Winwood, University of South Australia

**Associate Editors**

Associate Professor Prashant Bordia, University of South Australia

Professor Saswata Biswas, M.S. University of Baroda, Vadodara, India

Dr Nerina Jimmieson, University of Queensland

Professor David Morrison, University of Western Australia

Professor Michael O'Driscoll, University of Waikato, New Zealand

Professor Kan Shi, Chinese Academy of Science, China

Shelley Rogers, University of South Australia

**Apprentice Editors**

Master Class Work & Organisational Psychology 2007, University of South Australia

**Production Layout and Editing**

Cheryl Ayliffe Secretarial Services, Whyalla

**Coordinator**

Louise Carslake, University of South Australia

Note. The papers presented here have been peer reviewed. The proceedings will be available for purchase following the conference. Order forms can be found on <http://www.psychology.org.au/>