Invariance of Organisational Citizenship Behaviour Measurement Model across Institutions in Malaysia

Shamila Abu Hasan[1], Fatimah Omar[1], Rozainee Khairudin[1], Khairul Anwar Mastor[2], Mohamad Sahari Nordin[3], Wan Nurul Izza Wan Husin[4] & Azlan Mohamed Zain[5]

[1] School of Psychology & Human Development, Faculty of Social Sciences & Humanities, National University of Malaysia, 43600 UKM Bangi, Selangor, Malaysia

[2] Center for Liberal Studies (CITRA), National University of Malaysia, 43600 UKM Bangi, Selangor, Malaysia

[3] Kulliyyah of Education, International Islamic University Malaysia, P.O Box 10, 50728 Kuala Lumpur, Malaysia

[4] Department of Applied Psychology, University of Nottingham (Malaysia Campus), Jln. Broga, 43500 Semenyih, Selangor, Malaysia

[5] Information Technology Division, International Islamic University Malaysia, P.O Box 10, 50728 Kuala Lumpur, Malaysia

Correspondence: Shamila Abu Hasan, School of Psychology and Human Development, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Selangor, Malaysia. E-mail: shamilaabuhasan@gmail.com

Abstract

Organisational Citizenship Behaviour (OCB) is a discretionary behaviour that benefits organisations and their members. Even though OCB has been broadly researched over the years in the US, the measurement of OCB has received rather limited deliberation particularly in Asian contexts like Malaysia. This study tests the adequacy of the OCB measurement model and analyses the invariance of the model of 417 respondents in two Malaysian institutions. A three–dimensional OCB model was found to be adequate after having been subjected to Confirmatory Factor Analysis (CFA). As a result of discriminant validity, the two dimensions of OCB 'helping' and 'civic virtue' were found to measure the same thing. Consequently, the two dimensions were merged and named 'concern'. Although the factors were found to have acceptable reliability and validity with very few modifications, there is a need to further test the model with different and larger samples. This study also shows that the CFA model experienced invariance across institutions. The results have practical implications for recruitment and training managers to utilise the instrument as well as to pay more attention to the importance of cultivating OCB among staff of the sampled institutions.

Keywords: organisational citizenship behaviour, measurement model, confirmatory factor analysis, construct validity, invariance analysis

1. Introduction

Organisations require employees to transcend the formal requisites of the job role and be capable to act as 'good soldiers'. OCB has a reflective impact on the performance of individuals in the organisations. Performance becomes amongst the most important factors for success and demarcates the top performers from the underachievers (Rotundo & Sackett, 2002). The term OCB was coined by Bateman and Organ in 1983 while in 1988 Organ defined it as, individual behaviour that is unrestricted, indirectly or ambiguously identified by the formal reward system and that, in the aggregate, supports the effective operation of the organisation. The three dimensions of OCB are helping, civic virtue and sportsmanship. Despite the popularity of OCB studies in industrial and organisational psychology, the measurement of OCB has received relatively limited consideration particularly in Malaysia (Lo & Ramayah, 2009). The purposes of this study are twofold: (1) to establish the construct validity of OCB and (2) to cross-validate its measurement invariance across institutions.

1.1 OCB Relationships with Other Constructs

In accordance with the relationships between OCB and other constructs, meta-analyses and reviews reveal that OCB is related with many indicators of organisational and group effectiveness (Podsakoff & MacKenzie, 1997; Podsakoff, Whiting, Podsakoff, & Blume, 2009). Superiors auspiciously assess their employees' OCB in relation to their overall promotion and job performance (Podsakoff, MacKenzie, & Hui, 1993; Podsakoff et al., 2009). OCB also facilitates affirmative working surroundings, which attract and retain the employees of those particular organisations (Organ, 1988).

In addition, OCB promotes the functionality and effectiveness of a work unit or organisation so long as employees are educated on its importance. In support to this, Hoffman, Blair, Meriac, John and Woehr (2007) examined the relationships between task performance and OCB and attitudinal variables with OCB. Their results reveal that a one-dimensional OCB model relates to both variables with a strong relationship between OCB and attitudes.

1.2 OCB Relationships with Mediating Effects

Efficacious leadership may contribute to the progress of more vigorous perceptions of organisational and individual instrumentalities which then leads to OCB. In relation to this, Jiao, Richards and Zhang (2011) assessed how perceived organisational instrumentality (the belief that OCB contributes to the functionality and effectiveness of the work unit or organisation) and perceived individual instrumentality (the belief that the employees' own interests is important to OCB) related to the employees involvement in OCB and the ways in which it mediates the leadership effect on OCB among mid-sized financial company of 161 supervisor–subordinate dyads in China. The results show that perceived organisational instrumentality variance explained in OCB was beyond perceived individual instrumentality. In addition, perceived organisational and perceived individual instrumentalities are partially mediated the relationship between leadership (transformational leadership and contingent reward) and OCB.

1.3 Validating the OCB Measure

Few studies have sought to validate the OCB measure. Becker and Randall (1994) assessed the validity of OCB against an objective behavioural criterion after examining the factor structure of a revised version of OCB. Factor analysis suggests that this revised version of OCB has only conscientiousness and altruism dimensions. The results show that the 16 restaurant managers in the fast food service industry assess and perceive subtle components of job performance with reasonable accuracy. In addition, Hoffman et al. (2007) used Confirmatory Factor Analysis (CFA) to determine OCB dimensionality and tested its construct validity. Their results support the idea that a single factor OCB model was strongly related to task performance although they are distinct to each other. Furthermore, the shared variance of OCB with 'attitudinal correlates' is beyond 'task performance'. Based on these validation studies, it is hypothesised that:

Hypothesis 1: The OCB measurement model with three-factor structure is construct valid.

In accordance with the invariance analysis, Tayyab (2005) analysed the OCB invariance across two types of employees in Pakistan. The results revealed the equivalency of the items across permanent and contingent employees. It means that item content was identified in exactly the same way in both groups of employees whereby each group responded to the scale items in a similar conceptual frame of reference. Furthermore, Lievens and Anseel (2004) found clear support that the measurement structure of OCB had relative invariance across peer ratings of 215 employees and supervisor ratings of 259 subordinates in a Flemish part of Belgium within a Dutch-speaking context. Based on these researches, the second hypothesis was formed stating:

Hypothesis 2: There is relative invariance of the OCB measurement structure across institutions.

Thus, the present study hypothesises that helping behaviour, civic virtue and sportsmanship dimensions of the OCB would be related positively to the quality and quantity of the organisational performance. Consequently, this study analyses the adequacy of three OCB factors CFA model together with its invariance analysis across institutions.

2. Method

2.1 Respondents

The respondents were 560 staff members from two educational institutions in Malaysia whom were selected based on cluster sampling. Kerlinger and Lee (2000) stated that cluster sampling is the most effective sampling method for a large number of small clusters. A total of 560 questionnaires were disseminated to both institutions (280 questionnaires each institution) with at least eight questionnaires for each cluster. After cleaning up the data

using SPSS, the remaining samples were 417 from a total of 467 completed questionnaires which were gathered at the end of the data collection process. Thus, only 74.5% questionnaires were usable for this study. The respondents consisted of 32.8% males and 67.2% females. The mean age was 36.54 (SD = 9.73) with 27 missing cases. In terms of educational level, 35.55% hold secondary schools certificates, 30.15% were diploma holders, 13.72% were bachelor degree holders and 20.58% attained post-graduate degrees (9 missing cases).

2.2 Research Instruments

The Organisational Citizenship Behaviour (OCB) questionnaire developed by Podsakoff et al. (1997) was used. It consists of 13 items measuring three dimensions which were: helping behaviour with seven items, civic virtue with three items and sportsmanship with three items. Responses were rated on a Likert Scale format, with answers ranging from 1 for 'strongly disagree' and 7 for 'strongly agree'. All of the sportsmanship items were reversed-coded. The internal consistency of the items was deemed reliable as the Cronbach's alpha was .804 (Hair et al., 2010). Table 1 shows the descriptive statistics and list of items of the OCB measure used in this study.

Table 1. The descriptive statistics and list of items of the OCB measure

Construct	Abbreviation	Items	M	SD
Helping	ocb1	Help each other out if someone falls behind in his/her work.	4.78	1.563
	ocb2	Willingly share your expertise with other crew members.	6.26	.891
	ocb3	Try to act like peacemakers when other crew members have disagreements.	5.62	1.107
	ocb4	Take steps to try to prevent problems with other crew members.	6.06	.944
	ocb5	Willingly give of your time to help crew members who have work-related problems.	5.85	.986
	ocb6	'Touch base' with other crew members before initiating actions that might affect them.	5.59	1.140
	ocb7	Encourage each other when someone is down.	6.16	.910
Civic Virtue	ocb8	Provide constructive suggestions about how the crews can improve their effectiveness.	6.16	.864
	ocb9	Is willing to risk disapproval to express your beliefs about what's best for the crews.	5.53	1.275
	ocb10	Attend and actively participate in team meetings.	5.91	.987
Sportsmanship	ocb11	Always focus on what is wrong with the situation, rather than the positive side.	4.10	1.952
	ocb12	Consume a lot of time complaining about trivial matters.	5.47	1.735
	ocb13	Always find fault with what other crew members are doing.	5.89	1.603

2.3 Normality

The normality of the model is based on skewness and kurtosis. The value of skewness must be smaller than 3 (< |3|) (Chou & Bentler, 1995) and the value of kurtosis must be smaller than (< |10|) (Kline, 2011). Several outliers and the lowest loading items will be eliminated from the analysis until the normality is obtained.

2.4 Confirmatory Factor Analysis

CFA of the Structural Equation Modeling version 18 AMOS model-fitting program was applied to test the validity of items and constructs as well as to test the research hypotheses. The maximum likelihood estimation (MLE) method was utilised for the estimation of parameters. The overall model fit was assessed by using four indices of the model goodness-of-fit: (1) the chi-square statistics; (2) the comparative fit index (CFI); McDonald and Marsh (1990) stated that CFI values close to 1 indicate a very good fit; (3) the minimum value of the discrepancy between the observed data and the hypothesised model divided by degrees of freedom (CMIN/DF) or normed chi-square. Marsh and Hocevar (1985) described that the minimum fit function for CMIN/DF of an acceptable fit is between 2 and 5 ($2 \leq \chi^2/df \leq 5$); (4) the root mean-square error of approximation (RMSEA) was also presented. Browne and Cudeck (1993) demonstrate that RMSEA of smaller than 0.08 (<0.08) as a reasonable error of approximation. In addition RMSEA of between 0.08 to 0.10 indicates a mediocre fit

(MacCallum et al., 1996) and would not employ a model with a RMSEA greater than 0.1 (> 0.1) (Browne & Cudeck, 1993). The modification of the model was also conducted and discussed.

2.5 Construct Validity

The employment of factor loading, composite reliability (CR) and average variance extracted (AVE) were proposed by Hair, Black, Babin, Anderson and Tatham (2006) to determine the convergent validity. Factor loading for the parameters equals to or greater than 0.5 (≥0.5) and the composite reliability equals to or greater than 0.7 (≥ 0.7) were recommended by Hair et al. (2006). The AVE reading values should be greater than 0.5 (>0.5) as advocated by Fornell and Larker (1981). For discriminant validity analysis, this study employed the AVE of a latent variable to compare with other squared correlation latent variables or constructs. The AVE of the constructs should be greater than the other squared correlation latent variable or constructs (AVE > SV) (Kline 2011).

2.6 Invariance Analysis

The study cross-validate the model across two institutions using Invariance analysis. The hypothesised model was estimated using the covariance matrix derived from the data. In this manner, the estimation procedure fulfilled the underlying statistical distribution theory, and yielding estimates of desirable properties. The method used was SEM multi-group analysis. The moderating effect of the multi-group analysis of the model was tested to ensure the efficacy of the measurement model across institutions.

3. Results

3.1 Normality

The normality of the data distribution showed that all skewness and kurtosis values were smaller than 3 (< |3|) and 10 (< |10|) respectively. Therefore, no major violation on the normality of data distribution was observed.

3.2 Confirmatory Factor Analysis (CFA)

In this study, the original OCB measurement model was structured based on Podsakoff's (1997) conceptualisation of OCB with three dimensions. Figure 1 shows the hypothesised OCB measurement model with its parameter estimates.
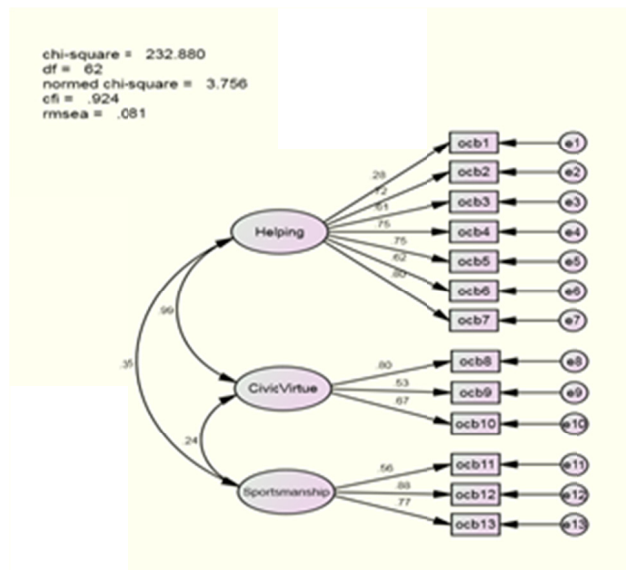

Figure 1. The hypothesised OCB measurement model with three-factor structure

The results of the goodness-of-fit of the OCB original model showed that normed chi-square (CMIN/DF) was 3.756, the CFI was 0.924 and RMSEA was 0.081. Table 2 shows the adequacy of the OCB measurement model.

Table 2. The Adequacy of the OCB Measurement Model

χ^2	Df	CMIN/DF	CFI	RMSEA
232.880	62	3.756	0.924	0.081

In this model, the correlation between 'helping' and 'civic virtue' was high (0.99) (Gaskin, 2012). As a result, both 'helping' and 'civic virtue' were merged as this high correlation indicated that they actually measuring the same thing (Gaskin, 2012). The new name given to the new construct was 'concern' as majority of the items reflected this quality. Similarly, the OCB1 and OCB9 were deleted because of their low loading estimates. Figure 2 shows the final revised OCB model with two-factor structure: concern and sportsmanship.
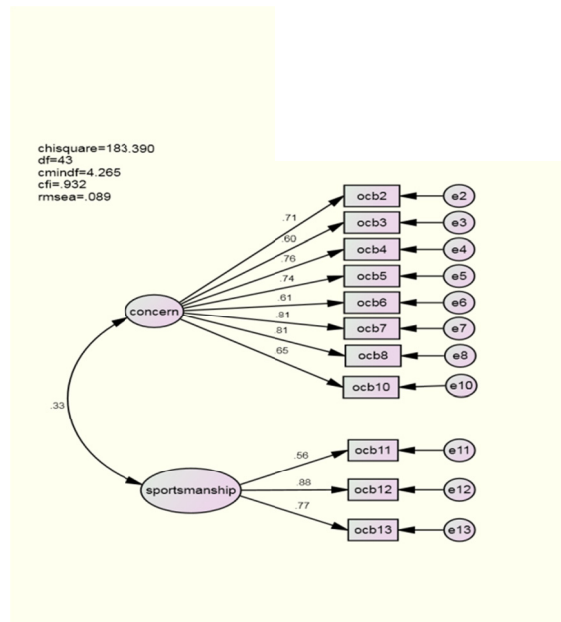

Figure 2. The final revised OCB model with two-factor structure

3.3 Construct Validity and Reliability

In this study, the factor loading for the parameters ranged from 0.560 to 0.880, with all the parameters were above 0.5 (>0.5). The composite reliability ranged from 0.791 to 0.893, were greater than 0.7 (>0.7). Furthermore, the AVE readings range from 0.515 to 0.566 where the values were greater than 0.5 (>0.5). For discriminant validity, the squared correlation or shared variance of 'concern' and 'sportsmanship' was 0.1089, therefore the AVE is greater than the SV (AVE > SV). Thus, all results fulfilled the AVE, CR and discriminant validity of the model. Generally, the measurement model was fit and fulfilled the construct validity as depicted in Table 3.

Table 3. Construct Validity of the Organisational Citizenship Behaviour

Construct	Item	Factor Loading	Construct Validity	
			Composite Reliability (CR)	Average Variance Extracted (AVE)
Concern	ocb2	0.700	0.893	0.515
	obc3	0.610		
	ocb4	0.760		
	ocb5	0.750		
	ocb6	0.610		
	ocb7	0.810		
	ocb8	0.810		
	ocb10	0.660		
Sportsmanship	ocb11	0.560	0.7911	0.566
	ocb12	0.890		
	ocb13	0.770		

3.4 Invariance Analysis (Multi-group Analysis)

In this study, the measurement model was further tested for institution-invariant through baseline and constrained

model multi-group analysis. A simultaneous analysis on both institutions was conducted, first without constraining the measurement model from which was derived a baseline Chi-square value. Figure 3 shows the baseline model for the invariance analysis for both institutions.
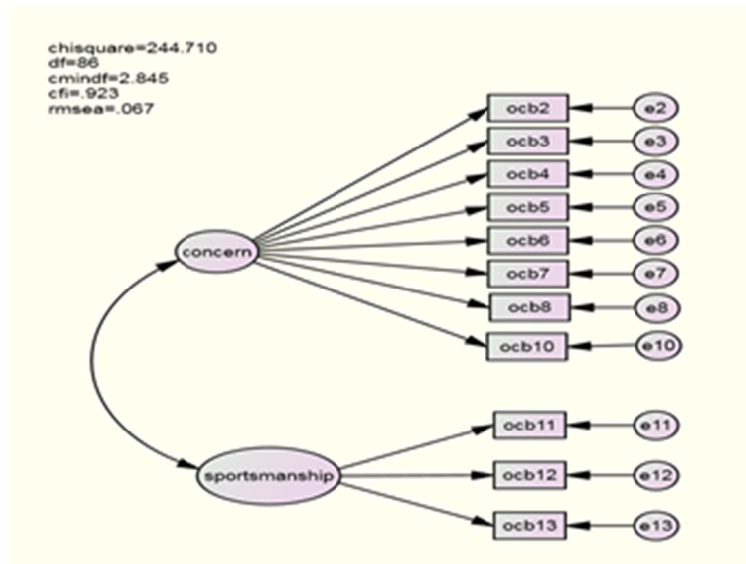

Figure 3. The baseline model for the invariance analysis across the two institutions

Next, all loadings were constrained to be equal for both groups. The analysis of this constrained model produced another Chi-square value, which was finally tested against the baseline value for statistically significant differences (Ahmad, Madarsha, Zainuddin, Ismail, & Nordin, 2010). The fit statistics of the constrained model were then checked. Figure 4 shows the constrained model. The goodness-of-fit indices showed that the model was parsimonious and had a good model fit with the χ^2/df = 2.709, CFI = 0.921 and RMSEA = 0.064 (MacCallum et al., 1996; Marsh & Hocevar, 1985; McDonald & Marsh, 1990).
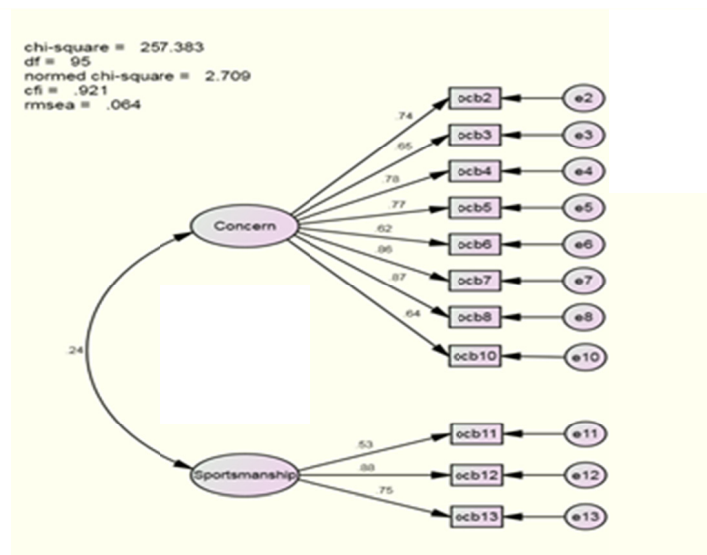

Figure 4. The constrained model

Table 4. Results of the Invariance Analyses

Overall Model	χ^2	df	Critical-value	$\Delta\chi^2$
Unconstrained	244.71	86	23.589	12.673
Fully constrained	257.38	95		

*Statistically significant at .005

Based on Table 4, the invariance test across both groups resulted in a statistically insignificant change in the Chi-square value, Chi-square (df =9) = 12.673, $p>$ .005. Simply said, the difference in the Chi-square values between the baseline model and the constrained model did not produce a poorer-fit model (Kline, 2011). The loadings did not vary significantly across institutions. It can thus justifiably conclude that the institution did not interact with the underlying traits to influence the staff members' responses to the indicators of OCB. This suggests that institution is not a moderating variable.

4. Discussion and Conclusion

This study investigates the dimensionality of OCB measures through confirmatory factor analysis across institutions in Malaysia. There were 417 respondents in this study. This study assessed the OCB measurement model with the three dimensions of helping, civic virtue and sportsmanship. In testing construct validity, there is a strong support for the discriminant validity issue for the two factors 'helping' and 'civic virtue'. In order to unravel this issue, these two constructs were combined into 'concern'. This scenario suggests that 'helping' and 'civic virtue' are in fact a similar attitude, experienced simultaneously by respondents in this research. It indicates that the two constructs are moulded together when staff members of both institutions were fulfilling their job responsibilities at their respective organisations. In other words, 'helping' comes together with 'civic virtue' and vice-versa. Hence, an organisation may deduce that staff members of both institutions with 'helping' behaviour are also those with 'civic virtue', which means staff members who possess the attitude of 'helping', also feel a strong sense of deep concern and active interest towards their organisations. Based on this finding, human resource managers of both institutions can use the findings to introduce new training programmes that use modules structured specifically to improve the new construct 'concern'. The 'concern' combines 'helping' and 'civic virtue', therefore, the module should consider matters related to 'helping' and 'civic virtue' as one construct. In addition to test the adequacy of the model, this study also sought to analyse the invariance of the OCB measurement model across two institutions. It was found that the measurement structure of the OCB was relatively invariant across these different sample groups. Therefore, the core idea is that the forms of citizenship behaviour observed signify well for the equivalence of OCB ratings across institutions. Future studies can include respondents from more than two institutions, so that the findings can be generalised to a wider group in a given population. Examining the invariance of OCB scales across different nature of institutions may be an interesting avenue for future research. In conclusion, this study provides support for both research hypotheses.

References

Ahmad, T. B. T., Madarsha, K. B., Zainuddin, A. M. H., Ismail, N. A. H., & Nordin, M. S. (2010). Faculty's acceptance of computer based technology: Cross-validation of an extended model. *Australasian Journal of Educational Technology*, *26*(2), 268-279.

Arbuckle, J. (2007). *AMOS 18 User's Guide.* Armonk, New York, USA: SPSS Incorporated.

Bateman, T. S., & Organ, D. W. (1983). Job satisfaction and the good soldier: The relationship between affect and employee "citizenship". *Academy of management Journal, 26*(4), 587-595.

Becker, T. E., & Randall, D. M. (1994). Validation of a measure of organisational citizenship behavior against an objective behavioral criterion. *Educational and Psychological Measurement*, *54*(1), 160-167. http://dx.doi.org/10.1177/0013164494054001021

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage Focus Editions*, *154*, 136.

Chou, C. P., Bentler, P. M., & Hoyle, R. H. (Eds.). (1995). *Structural Equation Modeling: Concepts, Issues, and Applications*. CA: Sage Publications.

De Vaus, D. A. (2002). *Surveys in social research*. St. Leonards NSW: Routledge.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Gaskin, J. (2012). *"Discriminant Validity", Gaskination's Statwiki.* Retrieved March 26, 2015, from http://Statwiki.Kolobkreations.Com

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis a Global Perspective* (7th ed.). New York: Pearson Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Hoffman, B. J., Blair, C. A., Meriac, J. P., & Woehr, D. J. (2007). Expanding the criterion domain? A quantitative

review of the OCB literature. *Journal of Applied Psychology*, *92*(2), 555-556. http://dx.doi.org/10.1037/0021-9010.92.2.555

Jiao, C., Richards, D. A., & Zhang, K. (2011). Leadership and organisational citizenship behavior: OCB- specific meanings as mediators. *Journal of Business and Psychology*, *26*(1), 11-25. http://dx.doi.org/10.1007/s10869-010-9168-3

Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of Behavioral Research* (4th ed.). California: Earl McPeek.

Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling* (3rd ed.). New York City: The Guilford Publications, Inc. http://dx.doi.org/10.1080/10705511.2012.687667

Lievens, F., & Anseel, F. (2004). Confirmatory factor analysis and invariance of an organisational citizenship behaviour measure across samples in a Dutch-speaking context. *Journal of Occupational and Organisational Psychology*, *77*(3), 299-306.

Lo, M. C., & Ramayah, T. (2009). Dimensionality of organizational citizenship behavior (OCB) in a multicultural society: The case of Malaysia. *International Business Research, 2*(1), 48-55.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power Analysis and Determination of Sample Size for Covariance Structure Modeling. *Psychological Methods, 1*(2), 130-149.

Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First-and higher order factor models and their invariance across groups. *Psychological bulletin*, *97*(3), 562-582. http://dx.doi.org/10.1037/0033-2909.97.3.562

McDonald, R. P., & Marsh, H. W. (1990). Choosing a multivariate model: Noncentrality and goodness of fit. *Psychological Bulletin*, *107*(2), 247-255.

Organ, D. W. (1988). *Organisational Citizenship Behavior: The Good Soldier Syndrome.* Lexington Books / DC Heath and Com.

Tayyab, S. (2005). Organisational citizenship behaviour: Validating factorial structure and invariance among employees. *Journal of the Indian Academy of Applied Psychology, 31*(1-2), 49-64.

Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship and counterproductive performance to global ratings of job performance: a policy-capturing approach. *Journal of Applied Psychology*, *87*(1), 66-80. http://dx.doi.org/10.1037/0021-9010.87.1.66

Podsakoff, P. M., Ahearne, M., & MacKenzie, S. B. (1997). Organisational citizenship behavior and the quantity and quality of work group performance. *Journal of applied psychology*, *82*(2), 262-270. http://dx.doi.org/10.1037/0021-9010.82.2.262

Podsakoff, P. M., & MacKenzie, S. B. (1997). Impact of organisational citizenship behavior on organisational performance: a review and suggestion for future research. *Human performance*, *10*(2), 133-151. http://dx.doi.org/10.1207/s15327043hup1002_5

Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual and organisational- level consequences of organisational citizenship behaviors: a meta-analysis. *Journal of Applied Psychology*, *94*(1), 122. http://dx.doi.org/10.1037/a0013079

Podsakoff, P. M., MacKenzie, S. B., & Hui, C. (1993). Organisational citizenship behaviors and managerial evaluations of employee performance: a review and suggestions for future research. *Research in Personnel and Human Resources Management*, *11*(1), 1-40.