Testing the Psychometric Properties of Organisational Citizenship Behaviour in the Context of Academic Staff in Universities in Uganda

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Abstract

Different tools have been developed to test organisational citizenship behaviour (OCB). However, psychometric properties developed and tested in a particular context do not guarantee their fit in all contexts and especially the operationalisation and application of dimensions of OCB may differ from country to country. Accordingly, in this study we set out to test the psychometric properties of Podsakoff et al.'s (1990) measure of OCB in the context of academic staff in selected universities in Uganda. Taking a positivism strand, we used a self-administered questionnaire and collected data from a sample of 159 academic staff drawn from Makerere University (Mak), Mbarara University of Science and Technology (MUST) and Mountains of the Moon University (MMU), who responded to a self-administered questionnaire on the instrument. Our analysis involved applying confirmatory factor analysis (CFA) retesting the reliabilities of the constructs using the Cronbach's alpha method and Pearson's linear correlations to check construct relatedness. We found that all the five constructs in the shortened version were valid, and that the five constructs were, however, interrelated. Based on Podsakoff et al.'s (1990) instrument, this research confirms the scale in the higher education context. We conclude that Podsakoff et al.'s (1990) instrument is valid and reliable. Nevertheless, we recommend other researchers to continue testing it in different contexts with the intent of refining it and also to have a sample size bigger than ours if the best results are to be obtained.

Keywords: *Academic; Correlation; OCB; Psychometric properties; University.*

Introduction

Organisations that have employees who carry out tasks beyond their job descriptions outperform those that do not (Farris, 2018). That act of going beyond task bureaucracies is what Bateman and Organ (1983) refer to as organisational citizenship behaviour (OCB. Bateman and Organ (1983), for instance, define OCB as organisationally beneficial behaviours and gestures exhibited by an employee that are neither obligatory nor done for remuneration. They posit that OCB consists of informal assistance that an employee could choose to volunteer or withhold without regard to considerations of sanction or official incentives. Over the years, a number of taxonomies pertaining to OCB have been forwarded to explain OCB. For instance, Organ (1988) proposes an expanded five-factor OCB taxonomy consisting of conscientiousness, sportsmanship, civic virtue, courtesy and altruism; Anderson and Williams (1991) propose two constructs: OCB towards the individual (OCB-I) and OCB which is organization-oriented (OCB-O); while Van Dyne et al. (1994) delineate loyalty, participation and obedience.

The importance of OCB is well captured by different authors (e.g., Borman, 2004; Burns & Carpenter, 2008). Borman (2004) contends that an employee's high level of OCB promotes his/her productivity and, in the end, an organisation becomes more able to attract and retain such an employee. Burns and Carpenter (2008) also contend that an employee who engages in sportsmanship increases the time spent on constructive endeavours than trivial matters in an organisation. Yaakobi and Weisberg (2020) posit that OCB facilitates the social machinery of an institution, thus being an enabler for employees to focus on their tasks. This implies that OCB is important in an organisation like a university. Given its importance, OCB has attracted several studies.

Although a lot of research has been done on OCB, much of it has focused on understanding the relationship between constructs rather than construct development. Matembe et al. (2015) report that studies validating OCB in developing countries are relatively small in number, thus testing the psychometric properties of OCB in Uganda is paramount. In contributing to closing the gaps identified in the few studies on validating OCB tools, we tested Podsakoff et al.'s (1990) instrument of OCB in the context of academic staff in universities in Uganda. The main question in our study was: Is Podsakoff et al.'s (1990) instrument of OCB valid and reliable in the context of academic staff in universities in Uganda? Our objectives were: (i) to test the psychometric properties of the shortened version of Podsakoff et al.'s (1990) instrument of OCB in the context of academic staff in universities in Uganda; and (ii) to test whether the five constructs of the shortened version of the instrument, namely conscientiousness (CON), sportsmanship (SPO), civic virtue (CV), courtesy (CT) and altruism (ALT), were independent.

Literature Review

Organ (1988) proposes a five-factor OCB taxonomy consisting of conscientiousness (CON), sportsmanship (SPO), civic virtue (CV), courtesy (CT) and altruism (ALT). In that regard, Organ defines conscientiousness as an employee's behaviour showing acceptance and adherence to the rules, regulations and procedures of an organisation; and sportsmanship as an employee's willingness to tolerate less than ideal circumstances without complaining

about trivial matters. Organ also defines civic virtue as keeping up with issues that affect the organisation; courtesy as consulting with others before taking action; and altruism as voluntary behaviours or actions that help a colleague with work-related problems.

Podsakoff et al. (1990) developed a scale of OCB basing on the work of Organ (1988), who had suggested that OCB consisted of five dimensions. The dimensions were conscientiousness (CON), sportsmanship (SPO), civic virtue (CV), courtesy (CT) and altruism (ALT). Podsakoff et al. used definitions of the constructs of OCB as provided by Organ and generated items for each construct. Podsakoff et al. gave supervisors definitions of the five dimensions and asked them to create another category of dimensions in case there were items that did not fit any of the conceptual definitions. Podsakoff et al.'s scale had 24 items (CON with five items; SPO with five items; CV with four items; CT with five items; and ALT with five items) and consisted of only items regarding which at least 80% of the judges agreed on the item's coding.

Over the years, several researchers have tested the validity and reliability of Podsakoff et al.'s (1990) instrument of OCB. Argentero et al. (2008), for example, tested an Italian version of Podsakoff et al.'s (1990) instrument on 1,066 respondents after translating it into Italian from the original English version. They performed tests on respondents who had clerical roles in the service sector in Italy. Having done exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), they found that "all the items … loaded on the factor from which they were derived" (p. 67). Cronbach's alpha of the total scale was 0.84. From item analysis, all items were found to be "homogeneous" (p. 67). Their results showed that although the constructs of OCB were distinct, they were significantly correlated.

Mahembe et al. (2015) validated the OCB scale using a sample of 503 from the educational sector in the Eastern and Western Cape Provinces of South Africa. They carried out a confirmatory factor analysis (CFA) and found that CON, SPO, CV, CT and ALT were valid measures of OCB. They also reported having found adequate internal consistency coefficients ($\alpha \geq 0.70$) of OCB constructs with Cronbach's alpha coefficients of 0.97 (CON), 0.80 (SPO), 0.94 (CV), 0.97 (CT), and 0.98 (ALT). They, however, noted that "there is need to replicate the study using public and private sector employees to establish if similar results would be obtained" (p. 6). They again noted that whereas psychometric results of the OCBS indicated reasonable construct validity, there was limited or questionable discriminant validity.

Kumar and Shah (2015) checked the psychometric properties of Podsakoff et al.'s (1990) instrument among permanent professionals in Srinagar in Kashmir, India. They had 340 participants in the category of doctors from SKIMS Hospital, academic staff from the University of Kashmir, and bank officers from J and K Bank. They did a pilot study on Podsakoff et al.'s 24-item scale, which included an initial reliability test on 15% of their total sample size. During the tests, Kumar and Shah discussed the items with respondents and other experts. They dropped items that lacked internal consistency or that had been reported by respondents and experts as having been vague or confusing. They ended up with a final scale of only 15 items. Taking a benchmark of Cronbach's alpha values above 0.6 as acceptable, they found that four of the constructs were reliable with Cronbach's alpha coefficients of 0.71 (ALT), 0.65 (CV) and 0.66 (CON), while SPO (0.58) was not. As a

result, they dropped sportsmanship from their analysis. Again, using principal component analysis, they found a three-factor structure of OCB, namely: ALT (respondents perceived ALT to be the same with CT), CV and CON. In summary, Kumar and Shah found that the validity and reliability of a brief version of the instrument was satisfactory. They, however, noted with concern that their "findings [were] limited to the items used to measure OCB in this particular study" (p. 59). They hence encouraged other researchers to investigate the validity and reliability of Podsakoff et al.'s scale in diverse and larger samples; this is the genesis of this sort of investigation.

Janadari et al. (2018) tested the validity and reliability of Podsakoff et al.'s (1990) instrument of OCB in Sri Lanka. They incorporated all the 24-item instrument of CON, SPO, CV, CT and ALT on 296 employees who were drawn from public sector organisations. They found that the five constructs of OCB were reliable, with their Cronbach's alpha values being well above 0.7 (i.e., ALT, 0.797; CV, 0.809; CON, 0.788; CT, 0.798; & SPO, 0.809). Janadari et al., however, point out that they only used a sample of employeees from Sri Lanka to test Podsakoff et al.'s measure and thus encouraged other scholars to do more research and explore OCB's "conceptual clarity and validity" (p. 7). Thus, the need for this investigation.

In addition to Janadari et al. (2018), Kumar and Shah (2015) and Mahembe et al. (2015), who reported contextual gaps in the instrument developed by Podsakoff et al., the length of Podsakoff et al.'s instrument has also been a concern to some researchers (e.g., Henderson et al., 2019; Kumar & Shah, 2015). Kumar and Shah (2015), in particular, report that when they reduced Podsakoff et al.'s (1990) original 24-item instrument to 15 items, they still found satisfactory validity and reliability of the brief version. Accordingly, Henderson et al. (2019) assert that a short version of an instrument reduces inflation of items, participant attrition, and survey costs. They thus stress that it is imperative to develop sound psychometric short tools for measuring OCB. To reduce the different gaps indicated in earlier studies, we sought to test the validity and reliability of the shortened version of Podsakoff et al.'s instrument of OCB among academic staff in universities in Uganda. In particular, we sought to: (i) establish the validity and reliability of each construct (CON, SPO, CV, CT and ALT) with the shortened version of the instrument; and (ii) to test whether the five constructs were independent of one another in the shortened version of the instrument.

Methodology

In this study, we adopted the positivist philosophical lane. The positivist paradigm aims at "identifying objective reality with adoption of a deductive approach based on theory and hypotheses" (Callingham & Hay, 2018). In this regard, I tested the applicability of Podsakoff et al.'s (1990) measure of OCB in the context of academic staff in universities in Uganda. I adopted a cross-sectional survey design. The survey method enabled me to collect data from a large number of respondents that I could generalise. With cross-sectional design, we took a random sample in order to understand the cross-section of interest (i.e., OCB and the antecedents as suggested by Podsakoff et al.'s model) at a particular point or

cross-section in time (Bordens & Abbott, 2018). We collected data using Podsakoff et al.'s (2000) instrument of OCB, which operationalised OCB as conscientiousness (CON) with five items; sportsmanship (SPO) with five items; civic virtue (CV) with four items; courtesy (CT) with five items; and altruism (ALT) with five items.

To be sure of our content validity, before collecting data, we carried out a preliminary validation of the instrument using face validity. This exercise helped us to avoid "contextually vague, irrelevant, ambiguous or confusing items" (Kumar & Shah, 2015, p. 53). Besides, the exercise helped us to reduce the items on CON from five to two; SPO from five to three; CV from four to three; CT from five to three; and ALT from five to three. In total, to measure OCB, our instrument remained with 14 items (Table 1). We scaled these items using the five-point Likert scale from 1(strongly disagree) to five (strongly agree).

Thence, we did confirmatory factor analysis (CFA) and reliability analysis (RA) for the valid items. For each item, we considered loadings measuring highly, that is above 0.5, on the factor. Mvududu and Sink (2013) recommend that only loadings with ≥ 0.5 should be considered. The Cronbach's alpha results above 0.7 were considered for internal consistency (de Souza et al., 2017). We also carried out correlations where we correlated OCB (dependent variable) with constructs of each of the four independent variables using Karl Pearson's linear correlation coefficient test.

Table 1: Constructs of OCB in the instrument

Construct	No. of Items adapted (*)	No. of Items in the Original Instrument (**)	Reliabilities of Items in the Original Instrument
Conscientiousness (CON)	2	5	0.82
Sportsmanship (SPO)	3	5	0.85
Civic virtue (CV)	3	4	0.70
Courtesy (CT)	3	5	0.85
Altruism (ALT)	3	5	0.85

Source: Podsakoff et al. (1990, pp. 124,125; Table 6, p. 126; Table 7)

Positivist researchers deal with relatively large samples which may represent the population and facilitate generalisation (Park et al., 2020). From the total population of 1,834 academic staff from the three universities at the time of data collection, based on Krejcie and Morgan's (1970) table of sample size determination, our sample size, out of 1,834, was 317 participants. Academic staff responded to a self-administered questionnaire and the proportionate figure for each of the three universities was Mak = 259, MUST = 22 and MMU = 36, making a total sample size of 317. We considered each college (in the case of Mak) and school or faculty (in the case of MUST and MMU) as a cluster, thus using cluster sampling. This is because positivists are strict about choosing their sample in that they use random sampling methods to select respondents. A total of 159 valid responses were obtained, yielding a (159/317) *100 = 50.2% response rate. The sample that provided data

and the respondents' background characteristics is indicated in Table 2. As given in Table 2, a typical respondent was aged up to 40 years (almost 59%), was a male (over 72%), came from MMU (almost 43%), had a master's degree as his highest level of education (over 60%); was at the rank of Assistant Lecturer (almost 52%); and had served the university for 10 or more years (over 38%).

Table 2: Background characteristics of respondents

Background variables	Category	Frequency	Percent
Age in years	Up to 40	76	58.5
	41 to 49	36	27.8
	50 and above	18	13.8
	Total	159	100.0
Gender	Male	114	72.2
	Female	44	27.8
	Total	158	100.0
The university of affiliation	Makerere	67	42.1
	Mountains of the Moon	68	42.8
	Mbarara University of Science and Technology	24	15.1
	Total	159	100.0
Highest level of education	Bachelors	10	6.3
	Masters	96	60.4
	PhD	53	33.3
	Total	159	100.0
Academic ranks	Teaching Assistant	11	7.0
	Assistant Lecturer	82	51.9
	Lecturer	40	25.3
	Senior Lecturer	18	11.4
	Associate Professor	4	2.5
	Professor	3	1.9
	Total	158	100.0
Tenure of service	Up to five	42	26.4
	Five but below 10	56	35.2
	10 or more	61	38.4
	Total	159	100.0

To achieve our first objective, we used confirmatory factor analysis (CFA) on validity and the Cronbach's alpha (α) coefficient method on reliabilities. In the case of our second objective, we used the Pearson linear correlation (PLC) analysis to establish whether the constructs of Podsakof et al.'s (1990) instrument were independent.

Results

Validity and reliability of a shortened version of Podsakoff et al.'s instrument. To achieve our objectives, we determined the appropriateness of factor analysis of the OCB instrument, establishing the factors and factor rotation of the components. We also computed average indexes for the valid items and thereafter correlated them using the Pearson linear correlation (PLC). The first objective in this study was to test the validity and reliability of the shortened version of Podsakoff et al.'s (1990) instrument of OCB in the context of academic staff in universities in Uganda. To achieve this objective, we used confirmatory factor analysis (CFA) and Cronbach's alpha coefficient. Before computing the aggregate index of items on a multi-item variable, we checked whether the different items were valid measures of a particular variable. To ascertain whether the different constructs had been answered validly, we used factor analysis. Thus, using principal component analysis, we first ascertained total variance explained and the percentage of the total variation in items factor analysed, explained by each factor. In selecting significant factors, we followed the Kaiser Guttman rule (Sarstedt & Mooi, 2019) that "an intuitive way to decide on the number of factors is to extract all the factors with an eigenvalue greater than 1" (p. 271) because each component/factor that has an eigenvalue greater than 1 accounts for extra variance than a single factor. Further to the validation of items on a multi-item variable, we checked whether all its valid items were jointly answered reliably and thus computed the reliability indices and Cronbach's alpha (α) for the different constructs.

During factor analysis, we considered factors with eigenvalues greater than 1 as significant. For an item to be highly loaded on a factor, we used 0.5, being the threshold magnitude as suggested by Mvududu and Sink (2013). We regarded the final alpha above 0.7 (de Souza et al., 2017) as the yardstick by assessing whether particular items were jointly a reliable measure of a given construct. The results of these tests are presented in the subsequent subsections of conscientiousness, sportsmanship, civic virtue, courtesy and altruism.

Conscientiousness. We used confirmatory factor analysis (CFA) to reduce the two items (CON1, CON2) on conscientiousness (CON) to only one significant factor. The factor had an eigenvalue of 1.556, meaning that the factor accounted for 1.556/2 * 100 = 77.776% of the joint variation in the two items. The respective loadings of the two items on the factor are given in Table 3.

Table 3: Factors and Cronbach's alpha for items of conscientiousness

Item	Description	Factor Loadings	α
CON1	I obey university rules and regulations even when no one is watching	0.882	0.713
CON2	My attendance at work is above the norm	0.882	
	Eigenvalue	1.556	
	% variance	77.6	

In Table 3, each loading was high (greater than 0.5), meaning that each of the two items was a valid measure of CON. The reliability (α = 0.713) of two items as per Table 3 was high (greater than 0.7), meaning that the two items were jointly reliable measures of CON.

Sportsmanship. We applied confirmatory factor analysis (CFA) to reduce the three items (SPO1, SPO2, SPO3) on sportsmanship (SPO) to only one significant factor. The factor had an eigenvalue of 1.813, meaning that the factor accounted for 1.813/3 * 100 = 60.446% of the joint variation in the three items. The respective loadings of the three items on the factor are given in Table 4.

Table 4: Factors and Cronbach's alpha for items of sportsmanship

Item	Description	Factor Loadings	α
SPO1	I do not waste time complaining about trivial matters in this university	0.737	0.666
SPO2	I do not find fault what the university is doing	0.751	
SPO3	I focus more on positive issues of this university than negative ones	0.840	
	Eigenvalue	1.813	
	% variance	60.46	

In Table 4, each factor loading was high (greater 0.5), meaning that each of the three items was a valid measure of SPO. We took the reliability (α = 0.666) of the three items as high basing on de Souza et al.'s (2017) observation that values above 0.60 were satisfactory.

Civic virtue. Table 5 shows that we used confirmatory factor analysis (CFA) to reduce the three items (CV1, CV2, CV3) on civic virtue (CV) to only one significant factor. The factor had an eigenvalue of 1.785, meaning that the factor accounted for 1.785/3*100 = 59.488% of the joint variation in the three items. The respective loadings of the three items on the factor are given in Table 5.

Table 5: Factors and Cronbach's alpha for items of civic virtue

Item	Description	Factor Loadings	α
CV1	I attend meetings that are not mandatory but which I consider important for the University	0.789	0.658
CV2	I attend functions that are not required but help the image of the University	0.810	
CV3	I read and keep up with announcements, memos and so on, in this University	0.701	
	Eigenvalue	1.785	
	% Variance	59.488	

As shown in Table 5, each loading was high (greater than 0.5), meaning that each of the three items was a valid measure of CV. We took the reliability (α = 0.658) of the three

items as high basing on de Souza et al.'s (2017) observation that values above 0.60 were satisfactory.

Courtesy. Using confirmatory factor analysis (CFA), we reduced the three items (CT1, CT2, CT3) on courtesy (CT) to only one significant factor. The factor had an eigenvalue of 2.065, meaning that the factor accounted for 2.065/3*100 = 68.818% of the joint variation in the three items. The respective loadings of the three items on the factor are given in Table 6.

Table 6: Factors and Cronbach's alpha for items of courtesy

Item	Description	Factor Loadings	α
CT1	I take steps to prevent problems with co-workers in this university	0.811	0.766
CT2	I am mindful of how my behaviour affects the jobs of other people in this university	0.851	
CT3	I do not abuse the rights of others in this university	0.826	
	Eigenvalue	2.065	
	% variance	68.818	

As in Table 6, each loading was high (greater than 0.5), meaning that each of the three items was a valid measure of CV. The reliability ($\alpha = 0.766$) of three items as per Table 6 was high, meaning that the three items were jointly reliable measures of CT.

Altruism. We used confirmatory factor analysis (CFA) to reduce the three items (ALT1, ALT2, ALT3) on altruism (ALT) to only one significant factor. The factor had an eigenvalue of 2.118, meaning that the factor accounted for 2.118/3*100 = 70.608% of the joint variation in the three items. The respective loadings of the three items on the factor are given in Table 7.

Table 7: Factors and Cronbach's alpha for items of altruism

Item	Description	Factor Loadings	α
ALT1	I help others who have been absent from work at this university	0.811	0.783
ALT2	I orient new staff even when it is not required in this university	0.835	
ALT3	I help others who have work-related problems in this university	0.874	
	Eigenvalue	2.118	
	% variance	70.608	

As in Table 7, each loading was high (greater than 0.5), meaning that each of the three items was a valid measure of ALT. The reliability coefficients ($\alpha = 0.783$) of the three items as per Table 7 was high, meaning that the three items were jointly reliable measures of ALT.

Correlations among the constructs. Our second objective in the study was to test whether the five constructs (CON, SPO, CV, CT, and ALT) in Podsakoff et al.'s (1990) instrument were independent. We computed average indexes for the valid items of the respective constructs from Tables 3 to 7 and then correlated them using the Pearson linear correlation (PLC). The intercorrelations of the dimensions are as shown in Table 8.

Table 8: Intercorrelations of the constructs as per Podsakoff et al.'s (1990) instrument

	CON	SPO	CV	CT	ALT
CON		0.403**	0.454**	0.512**	0.445**
SPO			0.461**	0.379**	0.300**
CV				0.434**	0.519**
CT					0.513**
ALT					

Results from Table 8 suggest that the five dimensions of OCB – that is CON, SPO, CV, CT and ALT – were significantly interrelated. This means that the internal consistency was high but also dimensions of OCB measured related items.

Discussion

The five dimensions of OCB as given in Podsakoff et al's (1990) instrument are conscientiousness (CON), sportsmanship (SPO), civic virtue (CV), courtesy (CT) and altruism (ALT). Our first objective was to test the validity and reliability of each of the five constructs, namely CON, SPO, CV, CT and ALT in Podsakoff et al.'s (2000) framework of OCB. Basing on the results, construct validity and reliability of the five dimensions of OCB were found to be valid and reliable. This means that the dimensions are a reflection of OCB. Altruism had the highest factor loadings of 0.783, followed by courtesy with 0.766, and conscientiousness with 0.713. Low factor loadings were seen in sportsmanship with 0.666, and least was civic virtue with 0.658. This is in congruence with Meilani et al.'s (2020) five-factor model as given by Podsakoff et al. (1990), which they applied in the French context. Our study also found that the constructs of OCB (conscientiousness, sportsmanship, civic virtue, courtesy and altruism) were valid and reliable, just like in other studies (e.g. Henderson et al., 2019) which were done in a developed-world context such as the USA.

The overall Cronbach's alpha results of OCB ($\alpha = 0.717$) being above 0.7 (de Souza et al. 2017) indicated that all items were internally consistent and thus all reliably measured OCB. Similarly, previous studies (e.g., Kumar & Shah, 2015; Mahembe et al., 2015) that validated Podsakoff et al.'s instrument of OCB found the tool to be reliable. In particular, Kumar and Shah (2015), having reduced Podsakoff et al.'s 24-item instrument to 15, reported that the instrument was valid and reliable based on a Cronbach's alpha result of 0.658. Mahembe et al. (2015), on the other hand, tested the instrument on a South African sample of employees and reported that the original Podsakoff et al.'s first 24-item instrument was also valid with adequate internal consistency among items that measure OCB.

Our second objective was to test whether the five constructs of the shortened version of the instrument, namely CON, SPO, CV, CT and ALT, were independent. The results of the correlation analysis suggested that all the five constructs were significantly interrelated. These results corresponded with those of Kumar and Shah (2015), Mahembe et al. (2015) as well as Janadari et al. (2018), who found that these constructs were closely related. This brings into a question whether the five constructs measure different things. A call for continuous testing of the tool to ascertain which constructs relate most and suggestions of a merger framework as researchers expound may arise.

Conclusion

Our purpose was to establish the validity and reliability of Podsakoff et al.'s instrument of OCB. The results showed that the five constructs of OCB, namely CON, SPO, CV, CT and ALT, as given by Podsakoff et al.'s instrument, though interrelated, were a sound measure of OCB. Hence, we call upon other researchers on OCB to continue using the instrument with confidence. Despite the contribution of this study, its limitations can still be identified. Whereas we close contextual and psychometric gaps, our sample is small. The respondents were from a few public and private universities, thus the generalisation of the research findings to all academic staff should be treated with caution. It is thus necessary for future researchers to investigate the validity and reliability of Podsakoff et al.'s instrument in diverse and larger samples in higher education and beyond.

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