Examining Bass's Transformational Leadership In Public Sector Executives: A Psychometric Properties Review

David Hemsworth, Ph.D., Nipissing University, Canada
Jonathan Muterera, Ph.D., Nipissing University, Canada
Anahita Baregheh, Ph.D., Nipissing University, Canada

ABSTRACT

The psychometric properties of the measure of transformational leadership as measured by 20 items in Bass and Avolio's Multifactor Leadership Questionnaire (MLQ) (Form 5x) were examined. The examination was based on a sample of 372 chief executives in the United States government.

Keywords: Transformational Leadership; Public Sector Leadership; Psychometric Properties; MLQ 5X; Multifactor Leadership Questionniare

INTRODUCTION

Leadership is by far one of the most widely studied areas in literature. Many proposed theories have made a substantial contribution to our understanding of the concept of leadership. These theories can be categorized into four major schools: traits, behavioural, contingency, and visionary (see Dulewicz & Higgs, 2003; Partington, 2003). The visionary school has gained popularity over the past decades. Bass's (1985) seminal book titled 'Leadership and Performance Beyond Expectations' represents one of the major contributions to the conceptualization of leadership. Building on the work of Burns (1978), Bass (1985) developed what is often referred to in literature as the Full-Range Leadership Theory (FRLT)(Antonakis & House, 2002). The theory fit leadership styles into three broad categories of transformational, transactional, and laissez-faire leadership. While the entire model has received a great deal of theoretical and practical attention (e.g., Antonakis, Avolio, & Sivasubramaniam, 2003; Toor & Ofori, 2009), the transformational leadership behaviour style (TLB) construct, in particular has garnered the utmost attention over the past decades in a variety of settings, such as, hospitals (e.g., Spinelli, 2006), banking (e.g., F.O. Walumbwa, Wang, Lawler, & Shi, 2004), sports (e.g., A. Yusof, 1998), sales (e.g., F.J. Yammarino & Dubinsky, 2006), police (e.g., Deluga & Souza, 2011), research and development (e.g., Keller, 1992), manufacturing (e.g., Edwards & Gill, 2012) and government (Muterera, 2008, 2012); thus is the focus of this study.

A review of literature suggests that some support is available concerning the psychometric properties (i.e., internal consistency reliability, factor structure, and predictive validity) (Barge & Schleuter, 1991) of Bass's transformational leadership construct. However, the construct is not without criticism (see Yukl, 1998; G. Yukl, 1999). For example, while a number of studies suggested that the factor structure of transformational leadership may not always be stable (see Bycio, Hackett, & Allen 1995; Carless, 1998; Tepper & Percy, 1994), another study by Bycio and colleagues (1995) showed that transformational leadership dimensions failed to exhibit discriminant validity due to high correlations among them.

As such, our study is the first to rigorously test the psychometric properties of the Bass's MLQ5X transformational leadership scale and its subscales using an adequate sample size. Additionally, this is the first study to test its applicability to upper level executives (i.e., chief executive officers) within the government setting and will allow us to establish the scale's discriminant validity (amongst other psychometric properties) and stability in this population.

Following this introduction, the remainder of this article is arranged as follows. The next section presents the theoretical underpinnings of Bass's (1985) transformational leadership construct. Following the literature review, the next section discusses the methodology of the study. This is followed by a presentation of the results of the study. Finally, implications and conclusions are provided.

THEORETICAL BACKGROUND

Bass (1985) defined a transformational leader as an individual who possesses certain characteristics, which are posited to motivate followers to move beyond their self-interest and commit themselves to organizational goals, thus performing beyond expectations. When Bass (1985) first developed the transformational leadership construct, he operationalized it to include the characteristics of charisma, intellectual stimulation, and individualized consideration. Based on these constructs he developed the Multifactor Leadership Questionnaire (MLQ), which measured these three domains of transformational leadership (note, the MLQ also measured other domains of the FRLT). Since the initial version of the MLQ (Form 1), a number of additional versions of the MLQ were developed(e.g., Bass & Avolio, 1995). Generally, these versions have been shorter in length and have refined the construct of transformational leadership. More specifically, the term charisma was changed to idealized influence, which was distinguished between attributed idealized influence (IIA) and behavioural idealized influence (IIB). Further, a fourth component, i.e., inspirational motivation was identified (Bass & Avolio, 1990). The most current version of the MLQ is the form 5X (MLQ 5X) (Bass & Avolio, 1995).

Idealized Influence: According to Bass (1985), a leader with high levels of idealized influence or charisma has the ability to make followers feel trust, show admiration, loyalty, and respect toward the leader. *Idealized Influence Attributes* (IIA) refers to the follower perceptions of the characteristics attributed to a leader. IIA describes a leader who is an exemplary role model and is admired and respected by his/her followers (Bass & Avolio, 1995). *Idealized Influence Behaviours* (IIB) refers to follower perceptions of the leaders' observable behaviour. IIB describes a leader who can be trusted and has high moral and ethical standards (Bass & Avolio, 1995). The reliabilities in previous studies for the IIA and IIB constructs as assessed by alphas coefficient are high wherein a coefficient over .70 indicates the scales are internally consistent (Nunnally & Bernstein, 1994). The alphas reported by Bass and Avolio (1995) for idealized influence attributed (IIA) was .91 and .86 for idealized influence (behaviour) (IIB). Other studies have also provided similar results, wherein the reliabilities for both IIA and IIB are over .70 (e.g., Felfe & Schyns, 2004; Gellis, 2001; Lee, Cheng, Yeung, & Lai, 2011; Sosik, Potosky, & Jung, 2002). However, Lee et al. (2011) reported a low reliability score for the idealized influence (behaviour) subscale.

Intellectual Stimulation(IS): According to Bass (1985) intellectually stimulating leaders arouse followers to recognize their own beliefs and values. They emphasize problem solving and promote intelligence and rationality. Intellectually stimulating leaders do not criticize followers when they differ from their ideas, rather, they stimulate followers to think in new ways and try new approaches (Avolio, Waldman, & Einstein, 1988). The reliabilities for the intellectual stimulation construct reported by Bass (1985) were .78. Subsequent studies showed high reliability results (e.g., Felfe & Schyns, 2004; Gellis, 2001; Lee et al., 2011; Sosik et al., 2002; Waldman, Bass, & Einstein, 1987).

Individualized Consideration (IC): Individualized consideration refers to a leader who provides a supportive environment (Bass, 1985). Transformational leaders will show concern for their followers and give personal attention to their followers on a one-to-one basis (Avolio et al., 1988). Such leaders treat followers with respect, and they provide continuous follow-up and feedback. The reliabilities for the individualized consideration construct reported by Bass (1985) were .84. A subsequent study by Waldman et al. (1987) showed reliability results of .87. While Lee et al. (2011) reported a reliability score less than .70 for the individualized consideration subscale, other studies have provided results similar to Bass (1985), wherein the reliabilities are over .70 (e.g., Felfe & Schyns, 2004; Gellis, 2001; Sosik et al., 2002).

Inspirational Motivation (IM): Inspirational motivation is the leaders' ability to inspire and motivate followers by providing examples for followers through symbols, images, emotional appeals, and effective communication of expectations (Bass & Avolio, 1990). Bass and Avolio (1995) reported the reliability Cronbach's alpha of .91 for the inspirational motivation subscale. With the exception of Lee et al. (2011) who reported a low reliability score for the

inspirational motivation subscale, subsequent studies showed high reliability results (e.g., Felfe & Schyns, 2004; Gellis, 2001; Sosik et al., 2002).

Overall, there is support for the reliability of the transformational subscales. Additionally, the validities of the subscales have been confirmed in literature. For example, Bass and Avolio (1995), Gellis (2001), Sosik et al. (2002), Felfe and Schyns (2004), Lee et al. (2011) reported factor loadings values in the confirmatory factor analysis ranging from an average of .62 to .91, which establishes construct validity. Bass's concept of transformational leadership is not without criticism. A review of literature suggests several limitations. As stated earlier in the introduction, Bycio and colleagues (1995) showed that transformational leadership dimensions failed to exhibit discriminant validity due to high levels of multicollinearity among them. According to Bycio et al. (1995), "the transformational factors were highly correlated, and more importantly they generally did not have strong differential relationships with the outcome variables" (p. 474). Relatedly, Carless (1998) found that the items designed to measure transformational leadership did not measure separate leadership behaviours. A more recent study by Lee et al. (2011) also revealed unsatisfactory discriminant validity. Further, our review of literature reveals several weaknesses. For example, Felfe and Schyns (2004) examination of the psychometric properties was limited to reliability (Cronbach alpha). Relatedly, Gellis (2001) looked at the reliability and inter-item correlations of the subscales. Heinitz, Liepmann, and Felfe (2005) looked at the inter-item correlations, internal consistency, and alternate factor structures. However, they did not do a rigorous psychometric evaluation of the factor structure as proposed by Bass. Although the study was conducted within the public administration setting, the sample included about 7-8% participants in leadership roles. Thus the homogeneity of leaders in their sample is questionable. Lee et al. (2011) attempted a much more rigorous evaluation of the reliability, convergent and discriminant analysis but ran into problems with the matrices being non-positive definite which was likely due to the relatively small sample size (n=160), resulting in a non-stable covariance matrix. Additionally 3/5 scales dealing with transformation leadership did not meet the .7 threshold for internal consistency.

Given the mixed approaches to establishing the psychometric properties (i.e., reliability and the construct validity (convergent and discriminant validity) of the transformational leadership construct; and the nonexistence of studies that examine the criterion validity of the transformational leadership scale and its subscales, this study seeks to contribute to the transformational leadership literature by better establishing the psychometric properties of this scale (and subscales). Additionally, this study extends the current literature to include leadership in the government sector. Potentially of equal importance, it examines the mature, seasoned leadership qualities of upper executives using a relatively large sample.

METHOD

Leadership Measures

Transformational leadership behaviour (TLB) and its subscales (IIA, IIB, was measured by the Multifactor Leadership Questionnaire Short Form (MLQ 5X) (Bass & Avolio, 1995). This version is widely used and it is the standard instrument used to collect information on three sets of leadership styles (i.e. transformational, transactional, and laissez-faire leadership) and consists of 36 items that measure these leadership styles. Twenty questions from the MLQ 5X Short Form were used in the current study to measure TLB. Respondents completing the leadership survey were asked to rank how frequently they displayed each of the 20 items of behaviour using a 5-point Likert scale, which ranges from (1) "not at all" to (5) "frequently, if not always".

Sample

Data was collected from county government executives in the United States. A total of 1,364 surveys were sent to participating county government executives, from which 416 were returned, and 372 were found to be valid for a usable response rate of 27%. Invalid responses were defined as those questionnaires with questions left unanswered and or those with identical responses to every question. The group of respondents were specifically selected to provide an examination of the mature leadership qualities of upper executives. This should provide a relatively homogenous, rather than a more disparate group that would have been obtained from line managers/supervisors. Respondents were selected across an array of departments.

The majority of the respondents for this study were male. Approximately 85% (n = 316) of the valid responses were male and 15% (n = 56) were female. Overall, 54.8% (n = 204) were appointed county administrators, 32.3% (n = 120) were elected county executives, and 12.9% (n = 48) were commission chairs. About 9 % (n = 33) of the total respondents had worked at their current position less than a year; 31% (n = 115) from between 1 and 5 years; 32 % (n = 120) from between 6 and 10 years; 15% (n = 56) from between 11 and 15 years; 9% (n = 33) from between 16 and 20 years; and 4% (n = 15) from 21 years and over. The majority of leaders had received bachelor's degrees, accounting for approximately 41% of valid respondents. Overall, 7% (n = 26) of the total leader respondents had associate degrees, 41% (n = 153) held bachelors degrees, 39% (n = 144) had a master's degree, 5% (n = 19) had doctoral degrees or professional certifications such as the CPA; and 8% (n = 30) had either a high school education or some college education.

Analysis of Data

Data were initially entered into Microsoft Excel 2003 and then Excel 2010 for pre-processing, data cleansing, and determination of scale composites. IBM SPSS Version 19 was then used for the statistical analyses and Lisrel 8.8 was used for the confirmatory factor analyses (CFA). CFA were conducted on all scales and subscales. All tests were two-tailed, and the level of significance was set at 0.05, so *p*-values α=0.05 were reported as statistically significant unless otherwise specified. We tested to determine 1) the psychometric properties of the transformational leadership construct and 2) whether the 5-factor structure of the construct fit the data collected from our United States country government executive participants. In order to establish this, we performed inter-item correlations, tests of reliability, and both convergent and discriminant validity analyses of the Transformational leadership scale and subscales.

RESULTS

We tested to identify the components of Transformational Leadership Behaviour (TLB) through the following 5 subscales: Idealized Influence (Attributes) (IIA), Idealized Influence (Behaviour) (IIB), Inspirational Motivation (IM), Intellectual Stimulation (IS) and Individualized Consideration (IC). In order to establish this, we performed inter-item correlations, tests of reliability, and three validity (i.e. convergent, discriminant, and concurrent/nomological) analyses of the TLB scale and subscales.

Inter-item correlations

The inter-item correlations were calculated for each set of items within each of the 5 subscales. All were significantly inter-correlated within their corresponding subscales ($p<.05$). The average inter-item correlations for the subscales were: IIA r=.48, IIB r=.52, IM r=.30, IS r=.44, and IC r=53. The average inter-subscale correlation for the 5 subscales was r=.45. The average inter-item correlation for the 20 items was r=.47. These inter-item and inter-subscale correlations were all above the recommended value of r=.3 (J. F. Hair, Anderson, Tatham, & Black, 1998).

Reliability

Scale reliability provides a measure of the internal consistency and homogeneity of the items comprising a scale (Churchill, 1979); it was calculated using Chronbach's alpha. The first step in establishing the scale reliability of the TLB was determining the overall reliability of the 20 items. This was calculated at α = .94, indicating a high level of internal consistency. Next, the reliability of all 5 TLS subscales was calculated. As seen Table 1, all subscales displayed reliability values in excess of.7 and were above the recommended minimum of.60 for exploratory studies (Churchill, 1979), providing evidence supporting the reliability of the subscales.

Table 1. Means and Standard Deviations for TLB Scale and Subscales (N=372)

	IIA	IIB	IM	IS	IC	TLB
Cronbach's Alpha	.77	.78	.70	.74	.80	.94
Mean	3.38	3.65	3.53	3.50	3.57	3.53
Standard deviation	.64	.64	.50	.66	.73	.58

Note: IIA=Idealized Influence (Attributes), IIB=Idealized Influence (Behaviours), IM=Inspirational Motivation, IS=Intellectual Stimulation and IC=Individualized Consideration, Transformational Leadership Behaviour (TLB)

Frequently the subscales from the TLB are averaged into composite values. The last step in establishing the reliability was to form average composite values for each of the subscales from their corresponding items and calculate the TLB's reliability with respect to its subscales. This produced composite variables representing the five constructs that compose the TLB. For example, the mean of the responses from questions 10, 18, 21 and, 25 was computed to determine the composite for Idealized Influence Attributes ($\bar{x}$ =3.38, *sd*=.64). The reliability of the 5 TLB composites was α = .94, once again demonstrating a high level of internal consistency.

Convergent Validity

Confirmatory factor analysis (CFA) was conducted to address the reliability and validity of the study's constructs (Anderson & Gerbing, 1988). Convergent validity is demonstrated when a set of alternative measures accurately represents the construct of interest (Churchill, 1979). More specifically, if all the individual item's factor loadings are significant, then the indicators are convergent, unidimensional and effectively measuring the same construct (Anderson & Gerbing, 1988). The CFA was conducted simultaneously for all 5 subscales (i.e., one model containing the 5 latent subscale constructs and the 20 measurement variables). Multiple fit criteria were used to assess the appropriateness of the measurement models tested (Bollen & Long, 1993; J. Hair, Anderson, Tatham, & Black, 1995). The chi-square (χ^2) was significant (χ^2=614.94, *df*=160, *p*=.00). The RMSEA=.088 was below the .10 recommended threshold and the model fit indexes NFI=.92, NNFI=.93, CFI=.94, IFI=.94, RFI=.90 indicated that the model has a reasonable fit. As can be seen in Table 2, the means of the 20 items ranged between $\bar{x}$ =3.06 and $\bar{x}$ =3.96 and the standardized loadings were moderately large ranging from λ=.43 to λ=.64. Each of the standardized loading was significant (*p*<.05) indicating that each item in the 5 subscales of the TLB converges and significantly contributes to their associated latent subscale construct.

Table 2. Construct Reliability Estimates and Measurement Loadings

Code	Construct / Item	Mean	SD	Std Loadings
IA	**Idealized Influence (Attributes)**			
V10	Instills pride in others	3.36	0.91	0.50*
V18	Goes beyond self-interest for the good of the group.	3.23	0.68	0.46*
V21	Acts in ways that builds others	3.58	0.82	0.58*
V25	Displays a sense of power and confidence.	3.36	0.90	0.56*
IB	**Idealized Influence (Behaviours)**			
V6	Talks about most important values and beliefs.	3.96	1.00	0.41*
V14	Specifies the importance of having a strong sense of purpose.	3.58	0.76	0.57*
V23	Considers the moral and ethical consequences of decisions.	3.45	0.78	0.64*
V34	Emphasizes the importance of having a collective sense of mission	3.60	0.73	0.56*
IM	**Inspirational Motivation**			
V9	Talks optimistically about the future.	3.75	0.65	0.51*
V13	Talks enthusiastically about what needs to be accomplished.	3.71	0.89	0.52*
V26	Articulates a compelling vision of the future.	3.61	0.78	0.60*
V36	Expresses confidence that goals will be achieved	3.06	0.33	0.39*
IS	**Intellectual Stimulation**			
V2	Re-examines critical assumptions for appropriateness	3.45	0.83	0.43*
V8	Seeks differing perspectives when solving problems.	3.74	0.72	0.46*
V30	Gets others look at problems from many different angles.	3.29	1.14	0.53*
V32	Suggests new ways of looking at how to complete assignments.	3.51	0.78	0.61*

Table 2. Continued

IC	Individualized Consideration			
V15	Spends time teaching and coaching.	3.64	0.89	0.60*
V19	Treats others as an individual rather than just as a member of a group.	3.69	0.92	0.49*
V29	Considers an individual as having different needs, abilities, and aspirations from others.	3.41	1.12	0.51*
V31	Helps others to develop their strengths.	3.55	0.73	0.60*

*All coefficients were significant p<0.001; Note: IIA=Idealized Influence (Attributes), IIB=Idealized Influence (Behaviours), IM=Inspirational Motivation, IS=Intellectual Stimulation and IC=Individualized Consideration

As mentioned studies frequently utilize the average of the subscales, thus a CFA was performed to determine if each of the composite subscale values converge measure single TLB scale/construct. The CFA had a non-significant chi-square value (χ^2=5.58, *df*=3, *p*=.13). The RMSEA=.048 was below the .10 recommended threshold and the model fit indexes NFI=1.00, NNFI=1.00, CFI=1.00, IFI=1.00, RFI=.99 indicated that the model has a reasonable fit.

As seen in the bottom row of Table 2, the standardized factor loadings ranged from λ=.79 to λ=.95. Each of the standardized loading was significant (p<.05) indicating that each item in the 5 subscale composites significantly contributes to the measurement of the TLB scale. In summary, the results provide satisfactory evidence of convergent validity for the indicators used to measure the TLB and its subscales.

Discriminant Validity

To establish that each of the five TLB subscales is a distinct construct, we conducted a discriminant analysis using CFA. Discriminant validity among the latent variables and their associated measurement variables can be assessed by fixing the correlation between pairs of constructs to 1.0, then re-estimating the modified model (Segars & Grover, 1993). By constraining the correlation between the two constructs to 1.0 we are essentially converting a two-construct model into a single-construct model. The condition of discriminant validity is met if the difference of the chi-square statistics between the constrained and unconstrained models is significant (1 df). As seen in Table 3, the inter-subscale correlations calculated in the CFA are significant (*p*<.05) but moderate ranging between *r*=.38 and *r*= .66. Very large inter-subscale correlations are frequently indicative of constructs that are not distinct, which is not the case here. The chi-square difference tests were significant (χ^2 >3.84, *df*=1, *p*>.05) between all of the subscales. This indicates that the constructs demonstrate high discriminant validity and that each subscale is measuring a distinctly different aspect of the TLB. In conclusion, considering both the correlation between constructs and the significant chi-square difference tests of the 5 subscales, there is strong evidence of discriminant validity among the five TLB constructs.

Table 3. Assessment of Discriminant Validity of the Constructs

		Chi-Square statistic			
	Correlation	Constrained model (d.f.)	Unconstrained model (d.f)	Difference	*p*- value
Transformational Leadership Style Constructs					
Idealized Influence (Attributes) (IIA) with					
Idealized Influence (Behaviours) (IIB)	.38	467.40	439.74	27.66	<.001
Inspirational Motivation (IM)	.48	93.95	74.99	18.96	<.001
Intellectual Stimulation (IS)	.46	550.08	520.76	29.32	<.001
Individualized Consideration (IC)	.66	617.35	606.37	10.98	<.001
Idealized Influence (Behaviours) (IIB) with					
Inspirational Motivation (IM)	.53	108.54	92.60	16.24	<.001
Intellectual Stimulation (IS)	.40	508.49	480.19	28.30	<.001
Individualized Consideration (IC)	.49	779.73	770.84	8.89	.003
Inspirational Motivation (IM) with					
Intellectual Stimulation (IS)	.61	757.83	739.71	18.12	<.001
Individualized Consideration (IC)	.59	928.90	907.40	21.5	<.001
Intellectual Stimulation (IS) with					
Individualized Consideration (IC)	.41	783.89	748.21	35.68	<.001

* Correlation is significant at the α=0.05 level (2-tailed); Note: IIA=Idealized Influence (Attributes), IIB=Idealized Influence (Behaviours), IM=Inspirational Motivation, IS=Intellectual Stimulation and IC=Individualized Consideration

Concurrent (Nomological) Validity

Concurrent validity is a type of criterion validity where the relationship of scale or subscale under investigation is determined with respect to another scale measuring a similar/related construct. In this study three leadership attributes where measured; transformational leadership behaviour (TLB), transactional leadership behaviour (TSLB), and Laissez-faire leadership (LFL). To determine the concurrent validity, the correlation between TLB and its 5 subscales were calculated in relation to the transactional leadership behaviour (TSLB) and Laissez-faire leadership scales. In Table 4 we can see that the correlations between the TLB, its subscales and TSLB are all significant and moderate to large in size, ranging from r= .656 to r=.750 . Additionally, with respect to TLB, its subscales and LFL the correlations are all significant and large in size, ranging from r= .873 to r=.995. This indicates that the TLB demonstrates concurrent validity in relation to these other leadership measures.

Table 4. Concurrent Validity of the TLB, its 5 subscales and the TSLB and LFL scales

	IIA	IIB	IM	IS	IC	TLB	TSLB	LFL
IIA	1	.799**	.768**	.812**	.855**	.928**	.672**	.885**
IIB		1	.839**	.788**	.844**	.932**	.719**	.945**
IM			1	.715**	.709**	.867**	.671**	.873**
IS				1	.817**	.908**	.656**	.912**
IC					1	.933**	.711**	.931**
TLB						1	.750**	.995**
TSLB							1	.752**
LFL								1

** Correlation is significant at the α=0.01 level (2-tailed); Note: IIA=Idealized Influence (Attributes), IIB=Idealized Influence (Behaviours), IM=Inspirational Motivation, IS=Intellectual Stimulation and IC=Individualized Consideration TLB=transformational leadership behaviour TSLB=transactional leadership behaviour, LFL=Laissez-faire leadership.

DISCUSSION AND IMPLICATIONS

One of the major strengths and contributions of this study is the rigorous analysis that was undertaken to establish the psychometric properties of Bass's (1995)Transformational Leadership Behaviour (TLB) scale. Potentially, of equal importance, we established the viability of the TLB construct for upper-level public sector executives. We performed inter-item correlations, tests of reliability, and three validity (i.e. convergent, discriminant, and concurrent/nomological) analyses of the TLB scale and subscales.

The results from the inter-item correlations indicated that the items within each set of the 5 subscales were significantly inter-correlated. The results also showed that the inter-correlations between the subscales were also significant. Reliability, established using Chronbach's alpha indicated high levels of internal consistency for the TLB scale. Additionally, each subscale displayed high reliability values and were above the recommended minimum value of for exploratory studies (Churchill, 1979).

Confirmatory factor analyses were used to test convergent validity of each TLB subscale as well and the overall TLB scale. With respect to the subscales, all loadings of each item in the 5 subscales were moderately high and were significant. This indicates that all items in each subscale significantly contribute and converge on their corresponding subscale and each subscale is unidimensional. With respect to the overall TLB scale, the CFA results indicated that all of the 5 TLB subscales fit well. This denotes that IIA, IIB, IM, IS, and IC converge well to measure the TLB construct.

Discriminant validity was also tested using CFA. The inter-subscale correlations were significant but moderate. Very large inter-subscale correlations are frequently indicative of constructs that are not distinct, which was not the case here. Rather, the results indicate that each subscale is measuring a distinctly different aspect of the TLB construct.

Finally, to determine the concurrent validity, the correlation between TLB and its 5 subscales were calculated in relation to the transactional leadership behaviour (TSLB) and Laissez-faire leadership (LFL) scales.

Correlations between the TLB, its subscales and TSLB are all significant and moderate to large in size. Additionally, with respect to TLB, its subscales and LFL the correlations are all significant and large in size, indicating that the TLB demonstrates concurrent validity in relation to TSLB and LFL. Overall, these results have several theoretical and practical implications.

Several researchers (e.g., Bycio et al., 1995; Carless, 1998; Lee et al., 2011) have demonstrated that transformational leadership dimensions have failed to exhibit discriminant validity due to high levels of correlations among them. These studies have found that the items designed to measure transformational leadership did not measure separate leadership behaviours and did not have unique contributions. This was not the case here. Although the five TLB subscales are often combined into a uni-dimensional transformational leadership behaviour construct, our findings suggest that transformational leadership dimensions measure distinct aspects of the TLB construct. This may be due to the fact that this study used a relatively mature well-seasoned set of executives rather than frontline managers and supervisors who may not yet have had the chance to develop transformational leadership qualities. Also, the former might be more homogenous than the latter who potentially come from a wide variety of supervisory roles and departmental areas.

Indeed, there is inter-dependence amongst the subscales however, the TLB is multi-dimensional, and as such it should not be parcelled (e.g., combined) uni-dimensonally (Williams & O'Boyle, 2008). However, the finding that the 5 TLB subscales are distinct potentially has important ramifications for future research, including determining the individual contributions of the TLB dimensions and potential impact on other key outcome variables.

For leaders wishing to develop their transformational leadership skills, an understanding of each of the TLB subscales is useful. For example, a leader may score high on the idealized influence behaviour subscale and low on the inspirational motivation subscale. Understanding the difference between the two may help the manager to channel his attention to activities that might help him/her develop more inspirational motivation. Additionally a leader who is weak in one or more of the areas could also seek training to develop expertise and thus increasing his effectiveness as a transformational leader.

CONCLUSION

In conclusion, we have found that the senior executives do demonstrate the five dimensions of transformational leadership. With respect to this group, we have rigorously tested the psychometric properties of the Bass's MLQ5X transformational leadership scale and it's subscales. This is the first study to test the applicability of the TLB scale to upper level executives (i.e., chief executive officers) within the government setting as well as establish the scale's discriminant validity (amongst other psychometric properties) and stability in this population. Overall, the results of this study indicate that the TLB scale and its subscales are reliable and valid within the examined population.

AUTHOR INFORMATION

David Hemsworth, Ph.D., School of Business, Nipissing University, North Bay, ON, P1B 8L7, Canada. E-mail: davidhe@nipissingu.ca

Jonathan Muterera, Ph.D., School of Business, Nipissing University, North Bay, ON, P1B 8L7, Canada. E-mail: jonathanm@nipissingu.ca (Corresponding author)

Anahita Baregheh, Ph.D., School of Business, Nipissing University, North Bay, ON, P1B 8L7, Canada. E-mail: anahitab@nipissingu.ca

REFERENCES

1. Anderson, J., & Gerbing, D. (1988). Structural equation modelling in practice: a review and recommended two-step approach. *Psychological Bulletin, 103*(2), 411-423.

2. Antonakis, J., Avolio, B. J., & Sivasubramaniam, N. (2003). Context and leadership: An examination of the nine-factor full-range leadership theory using the Multifactor Leadership Questionnaire. *The Leadership Quarterly, 14*(3), 261-295.
3. Antonakis, J., & House, R. (2002). An analysis of the full-range leadership theory: The way forward. *Transformational and charismatic leadership: The road ahead*, 3-33.
4. Avolio, B. J., Waldman, D. A., & Einstein, W. O. (1988). Transformational leadership in a management game simulation: Impacting the bottom line. *Group & Organization Studies, 13*(1), 59-80.
5. Barge, J. K., & Schleuter, D. W. (1991). Leadership as organizing: A critique of leadership instruments. *Management Communication Quarterly, 4*(4), 541-570.
6. Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
7. Bass, B. M., & Avolio, B. J. (1990). *Manual: The Multifactor Leadership Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.
8. Bass, B. M., & Avolio, B. J. (1995). *The Multifactor Leadership Questionnaire*. Palo Alto, CA: Mind Garden.
9. Bollen, K., & Long, J. (1993). *Testing Structural Equation Models*. Newbury Park, CA: Sage Publications.
10. Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
11. Bycio, P., Hackett, R. D., & Allen, J. S. (1995). Further Assessments of Bass's (1985) Conceptualization of Transactional and Transformational Leadership. *Journal of Applied Psychology, 80*(4), 468-478.
12. Carless, S. A. (1998). Assessing the Discriminant Validity of Transformational Leader Behaviour as Measured by the MLQ. *Journal of Occupational and Organizational Psychology, 71*, 353-358.
13. Churchill, G. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research, 16*(1), 64-73.
14. Deluga, R. J., & Souza, J. (2011). The effects of transformational and transactional leadership styles on the influencing behaviour of subordinate police officers. *Journal of Occupational Psychology, 64*(1), 49-55.
15. Dulewicz, V., & Higgs, M. (2003). Leadership at the top: The need for emotional intelligence in organizations. *International Journal of Organizational Analysis, 11*(3), 193-210.
16. Edwards, G., & Gill, R. (2012). Transformational leadership across hierarchical levels in UK manufacturing organizations. *Leadership & Organization Development Journal, 33*(1), 25-50.
17. Felfe, J., & Schyns, B. (2004). Is Similarity in Leadership Related to Organizational Outcomes? The case of Transformational Leadership. *Journal of Leadership and Organizational Studies, 10*(4), 92-102.
18. Gellis, Z. D. (2001). Social Work Perceptions of Transformational and Transactional Leadership in Health Care. *Social Work Research, 25*(1), 17-25.
19. Hair, J., Anderson, R., Tatham, R., & Black, W. (1995). *Multivariate Data Analysis with Readings* (4 ed.). Englewood Cliffs, NJ: Prentice Hall.
20. Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Multivariate analysis. *Englewood: Prentice Hall International*.
21. Heinitz, K., Liepmann, D., & Felfe, J. (2005). Examining the Factor Structure of the MLQ. *European Journal of Psychological Assessment, 21*(3), 182-190.
22. Keller, R. T. (1992). Transformational leadership and the performance of research and development project groups. *Journal of Management, 18*(3), 489-501.
23. Lee, P. K. C., Cheng, E. T. C., Yeung, A. C. L., & Lai, K. H. (2011). An Empirical Study of Transformational Leadership, Team Performance and Service Quality in Retail Banks. *Omega, 39*, 690-701.
24. Muterera, J. (2008). The Relationship Between Leadership Theory Behaviors, Follower Attitudes and Behaviors, and Organizational Performance in United States County Governments. (PhD Dissertation), Western Michigan University, Kalamazoo.
25. Muterera, J. (2012). Leadership Behaviors and Their Impact on Organizational Performance in Governmental Entities. *OIDA International Journal of Sustainable Development, 3*(8), 19-24.
26. Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). New York: McGraw-Hill.
27. Partington, D. (2003). Managing and leading. *People in project management.* Aldershot, UK: Gower.
28. Segars, A., & Grover, V. (1993). Re-examining perceived ease of use and usefulness: A confirmatory factor analysis. *MIS Quarterly, 17*(4), 517-525.
29. Sosik, J. J., Potosky, D., & Jung, D. I. (2002). Adaptive Self-regulation: Meeting Others' Expectations of Leadership and Performance. *Journal of Social Psychology, 42*(2), 211-232.

30. Spinelli, R. J. (2006). The applicability of Bass's model of transformational, transactional, and laissez-faire leadership in the hospital administrative environment. *Hospital Topics, 84*(2), 11-19.
31. Tepper, B. J., & Percy, P. M. (1994). Structural Validity of the Multifactor Leadership Questionnaire. *Educational and Psychological Measurement, 54*(3), 734-744.
32. Toor, S. R., & Ofori, G. (2009). Ethical leadership: Examining the relationships with full range leadership model, employee outcomes, and organizational culture. *Journal of Business Ethics, 90*(4), 533-547.
33. Waldman, D. A., Bass, B. M., & Einstein, W. O. (1987). Leadership and Outcomes of Performance Appraisal Processes. *Journal of Occupational Psychology, 60*(3), 177-186.
34. Walumbwa, F. O., Lawler, J. J., Avolio, B. J., Wang, P., & Shi, K. (2005). Transformational Leadership and Work-Related Attitudes: The Moderating Effects of Collective and Self-Efficacy Across Cultures. *Journal of Leadership and Organizational Studies, 11*(3), 2-16.
35. Walumbwa, F. O., Wang, P., Lawler, J. J., & Shi, K. (2004). The role of collective efficacy in the relations between transformational leadership and work outcomes. *Journal of Occupational and Organizational Psychology, 77*(4), 515-530.
36. Williams, L. J., & O'Boyle, E. H. (2008). Measurement models for linking latent variables and indicators: A review of human resource management research using parcels. *Human Resource Management Review, 18*(4), 233-242.
37. Yammarino, F. J., & Dubinky, A. J. (1994). Transformational Leadership Theory: Using Levels of Analysis to Determine Boundary Conditions. *Personnel Psychology, 47*(4), 787-812.
38. Yammarino, F. J., & Dubinsky, A. J. (2006). Transformational leadership theory: Using levels of analysis to determine boundary conditions. *Personnel Psychology, 47*(4), 787-811.
39. Yukl, G. (1998). *Leadership in organizations* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.
40. Yukl, G. (1999). An Evaluation of Conceptual Weaknesses in Transformational and Charismatic Leadership Theories. *Leadership Quarterly, 10*(2), 285-305.
41. Yukl, G. (1999). An evaluation of conceptual weaknesses in transformational and charismatic leadership theories. *The Leadership Quarterly, 10*(2), 285-305.
42. Yusof, A. (1998). The Relationship between Transformational Leadership Behaviors of Athlectic Directors and Coaches' Job Satisfaction. *Physical Educator, 55*(4), 170-176.
43. Yusof, A. (1998). The relationship between transformational leadership behaviors of athletic directors and coaches' job satisfaction. *Physical Educator, 55*, 170-175.

