

Development of a Survey that Supports Two, Three and Five Meta-Categories of Leadership Behaviour

Peter H. Langford (peter.langford@voiceproject.com.au)

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

Ying Fong (echo.fong@voiceproject.com.au)

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

Abstract

The present paper reports the development of a leadership survey that contains lower-order factors representing a broad range of commonly researched leader behaviours, as well as higher-order factors that support models of two, three and five “meta-categories” of leadership behaviour. Research into leadership, and assessment and development of leaders, continues to be hampered by the lack of a broad-ranging model and measure of leader behaviour. Over the last century, leadership has been conceptualized in terms of a single, then two, “meta-categories” of behaviour. In a recent review Yukl (2006) summarized leadership thinking in terms of three meta-categories of leadership behaviour that encompass transactional task-related and relations-related behaviours but which also include transformational change-related behaviours. It is hypothesized that the continued evolution of leadership thinking may expand this model to five meta-categories mirroring the Big Five personality factors, with the benefit of explicitly recognising the importance of emotional stability and separating important components of change-related behaviours. This paper analyses survey ratings of 1766 senior leaders. Using cross-validated exploratory and confirmatory factor analyses, 22 lower-order behaviour categories were identified, and higher-order factor structures were found supporting two, three and five meta-categories of leadership. Implications for both leadership research and practice are discussed.

Introduction

The Organisation Man

Much of the thinking about leadership in the first half of the twentieth century was driven by theories such as Fayol’s five core leadership priorities (planning, organising, commanding, coordinating and controlling; Fayol, 1949, first published in 1916), and Taylor’s (1911) scientific management (with management involving the analysis and segmentation of specific tasks). The modern distinction of leadership and management was not recognised, and the essence of leadership was seen to be the application of rational efficiency to production and labour.

Two Meta-Categories: Structure & Consideration

In the 1920s and 1930s the Human Relations Movement highlighted the impact of social relations and employee satisfaction on employee productivity. Experiments on factory workers at the Hawthorne Works (Roethlisberger & Dickson, 1939), followed by similar work by Mayo (1933), suggested that showing concern for workers’ needs may provide alternative avenues for raising organisation performance. The research programs at Ohio State University in the 1950s found two meta-categories labeled “initiating structure” and “consideration” (Stogdill & Coons, 1957). Subsequently, Blake and Mouton (1964) proposed a “managerial grid” which described behaviour in terms of “concern for production” and “concern for people”.

Three Meta-Categories: Change, Task & Relations

Theories of transformational leader behaviour emerged during the 1980s including change-oriented behaviours such as challenging the status quo, creating and communicating an appealing vision, setting high standards of performance, and providing intellectual stimulation to help subordinates become more innovative (Bass, 1985; Conger, 1989; House, 1977). Recently, Yukl (2006) explicitly identified and empirically supported the three meta-categories of task-oriented behaviours (i.e., planning and control; similar to the earlier “initiating structure” factor), relations-oriented behaviours (i.e., supporting and consulting with workers; similar to the earlier “consideration” factor), and change-oriented behaviours (involving being innovative and motivating people to work towards organisational transformation).

The Next Evolutionary Step: Five Meta-Categories?

Yukl’s three meta-categories of task, relations and change-oriented behaviours are conceptually similar to the Big Five model of personality (e.g., McCrae & Costa, 1997). The change meta-category can be

dissected to components similar to the Big Five factors of extraversion and openness. There are also clear links between the task meta-category and the Big Five factor of conscientiousness, as well as between the relations meta-category and agreeableness (Table 1).

Only the behaviours associated with emotional stability have not been explicitly identified within most current leadership theories. Nevertheless, the separation of emotional stability as a leader behaviour meta-category may be beneficial given the longstanding recognition of stress management in cognitive resources theory (Fiedler & Garcia, 1987), current interest in emotional intelligence (Salovey & Mayer, 1990) and practitioner attention given to emotional “derailers” (Rowlands, 2001). It is hypothesized here that emotional stability will be associated with the relations meta-category because of the impact that poor stress management can have on interpersonal relations.

Hypothesis A five-factor model of leadership will be identified that explains a practically important increase in variance over the previous two- and three-factor models of leader behaviours.

Table 1: Hypothesised Associations Between Yukl’s Three Meta-categories and the Big Five.

Three Meta-Categories	The Big Five
Change	Extraversion
<ul style="list-style-type: none"> • Envisaging change • Being innovative • High expectations 	<ul style="list-style-type: none"> • Energy • Drive • Socially influential
	Openness
	<ul style="list-style-type: none"> • Open-minded • Creative • Learning-oriented
Task	Conscientiousness
<ul style="list-style-type: none"> • Planning • Monitoring • Controlling 	<ul style="list-style-type: none"> • Organised • Disciplined • Results-oriented
Relations	Agreeableness
<ul style="list-style-type: none"> • Supporting • Developing • Consulting 	<ul style="list-style-type: none"> • Helpful • Being fair • Considerate
	Emotional-Stability
	<ul style="list-style-type: none"> • Managing stress • Being satisfied • Enjoying work & life

Method

Participants

As part of a large undergraduate project, students collected data from 1766 participants who were each asked to rate a senior manager with whom they worked

on 114 items designed to assess leader behaviours. A “senior manager” was defined as someone in the top third of management levels in their organisation.

The participants reported a median age of 20-29, an even split between males and females, a median income of \$40,000 to \$69,999, median work experience of 5-10 years, and 52% held a bachelors degree or higher.

Of the senior managers who were rated, 86% were more senior than the raters, 10% were peers, and 4% were less senior than the raters. Analyses showed very similar ratings from supervisors, peers and subordinates; given the benefit of a larger sample and more rounded set of ratings using multiple raters, all of the ratings from supervisors, peers and subordinates were included in the current analyses.

The rated managers were 70% male, 30% female; 78% came from the private sector, 16% from the public sector, and 6% from the non-government not-for-profit sector. The senior managers worked in a broad range of industries closely representing the industry distribution in the Australian economy.

Measure

The new survey developed in this research built upon a shorter, unpublished survey previously developed by the authors. Additional content was added in order to cover leader behaviours highlighted as important by Bass and Avolio (1995) in their Multifactor Leadership Questionnaire, Podsakoff, MacKenzie and Bommer (1996) in their study of transformational leader behaviours, and Yukl (2006) in his review of three meta-categories of leader behaviour. Given that these previous measures represented only four of the hypothesized five meta-categories, additional items were also added to represent emotional stability. An additional four items (e.g., “Achieves his/her goals and objectives at work” and “I am willing to put in extra effort for him/her”) were included for the participants to rate the overall effectiveness of the senior managers.

Participants took an average of 15 minutes to complete the survey. All answers were provided on a 5-point rating scale ranging from 1 = “Strongly Disagree” to 5 = “Strongly Agree”.

Results

The 1766 responses were split evenly into two groups. The first group was used for exploratory factor analyses (EFAs) and refining the content of the survey. The second group was used for cross-validation and confirmatory factor analyses (CFAs).

Group 1 Analyses

Lower-Level Categories The original 114 items were submitted to a series of EFAs in order to identify a

broad range of lower-level leader behaviours and shorten the survey. The survey was reduced to 63 items measuring the lower-order categories shown in Table 2. Table 2 also shows the scale alphas, means, and standard deviations of the categories, as well as the correlations and regression weights when using the categories to predict ratings of overall effectiveness.

Meta-Categories Scores on the lower-order categories were in turn submitted to further exploratory factor analyses with the aim of investigating the appropriateness of two, three and five higher-order meta-categories of leader behaviour. Support for all three models was found. The nested loading of lower-order behaviour categories on the two, three and five meta-categories is shown in Figure 1.

With only one exception, the lower-order behaviours loaded as expected on the five meta-categories (loadings are shown in Table 2). The only unexpected loading was stress management which was expected to load on the meta-category of emotional stability but instead loaded highest on agreeableness and showed its second highest loading on conscientiousness. The five-factor model accounted for 72% of variance in the data. Average on-factor loading was .60 (minimum was .44) and average off-factor loading was .23 (maximum was .32).

When exploring three meta-categories, all the behaviours associated with the five-factor conscientiousness meta-category loaded on the three-factor task meta-category; all the behaviours associated with the extraversion and openness five-factor meta-categories loaded on the three-factor change meta-category; and all the behaviours associated with the agreeableness and emotional stability five-factor meta-categories loaded on the three-factor meta-category of relations. The three meta-categories accounted for 64% of variance in the data, a drop of 8% from the five-factor model. Average on-factor loading was .62 (minimum was .48) and average off-factor loading was .29 (maximum was .44).

Finally, when exploring two meta-categories, all the behaviours associated with the three-factor task and change meta-categories loaded on the two-factor structure meta-category, and all the behaviours associated with the three-factor relations meta-category loaded on the two-factor consideration meta-category. The only exception to this otherwise clean nested relationship was that the optimism lower-order behaviour loaded slightly higher on the consideration meta-category rather than the structure meta-category.

The two-factor model accounted for 59% of variance in the data, 5% less than the three-factor model and 13% less than the five-factor model. Average on-factor loading was .64 (minimum was .49) and average off-factor loading was .36 (maximum was .49).

Group 2 Analyses

The model in Figure 1 was submitted to a confirmatory factor analysis using the second group of respondents. Satisfactory fit of the data was found with a chi-squared value of 1432 ($df. = 202, p < .01$), a CFI of .91, a NFI of .89, a TLI of .89 and a standardized RMSR of .05. Given the large sample size the chi-squared value was expected to be significant. The CFI, NFI and TLI were all around the .90 threshold which is generally accepted as indicating good fit of the data. Similarly, a standardized RMSR of .05 or lower is regarded as indicating good fit. Inspection of modification indices suggested no alternative paths for the model.

Discussion

As hypothesized, a five-factor model of leader behaviour was found to explain increased variance in ratings of the lower-order behaviour categories as well as ratings of leader effectiveness. Five meta-categories explained 8% more variance in behaviour ratings than the three-factor model and 13% more than the two-factor model. Also, two of the three additional behaviours associated with emotional stability in the five-factor model showed strong correlations and regression weights when predicting coworker ratings of leader effectiveness.

There may be substantial theoretical benefit in integrating the literatures of leader behaviour and personality. There exists an enormous literature on the Big Five personality dimensions, and substantial confidence that the Big Five dimensions provide a reasonably exhaustive model of behaviour. The application of such a model may help ensure that research into leader behaviour covers a similarly exhaustive set of behaviours. Moreover, by applying a five-factor model of leader behaviour researchers may be able to transfer knowledge of the nature, causes and consequences of the Big Five personality dimensions to inform leadership research.

Using a five-factor model, practitioners may benefit from applying a more exhaustive, but still relatively simple, set of behaviours to the assessment and development of effective leadership. The use of five meta-categories keeps the model of leader behaviour simple enough for managers to relatively easily remember and apply. The five meta-categories presented here provide greater insight into the components of change-related behaviours (e.g., behaviours closely associated with extraversion and openness loaded on the three-factor meta-category of change). The five meta-categories also emphasise the importance of a set of behaviours associated with emotional stability not commonly included in previous models of leadership, but which were here shown to be useful predictors of coworker ratings of leader effectiveness.

Of interest was the finding that the lower-order behaviour of stress management showed higher loadings on both agreeableness and conscientiousness than on emotional stability. This finding may be understood through cognitive resources theory (Fiedler & Garcia, 1987) which suggests leaders may manifest high stress through unproductive behaviours in dealing with tasks and interpersonal issues, resulting in poor plans and decisions, as well as disruptions in group processes and teamwork.

Future research could explore whether the use of the five meta-categories explains additional variance in a broader range of leader outcomes. Similarly, exploratory use of the five meta-categories may help to determine if five meta-categories provide a practically useful addition to the existing three-factor model – it is possible that the practical value associated with the two additional factors may not outweigh the additional conceptual complexity.

Table 2: Lower-order Categories of Leader Behaviours, Example Items, Scale Alphas, Means, Factor Loadings, Correlations and Regression Weights.

Lower-order leader behaviour category	Example Item	Alpha	<i>M</i>	<i>SD</i>	Factor loading ^a	<i>r</i> ^b	β ^c
<u>Extraversion</u>							
Vision & Inspiration	Makes the mission of the organisation seem important	.84	3.99	0.92	.51	.60*	-.01
High Expectations	Has high performance expectations	.84	4.42	0.70	.62	.39*	.01
Advocacy	Speaks positively about the organisation to others	.88	4.32	0.74	.59	.54*	.06*
Verbal Influence	Is a confident presenter	.87	4.24	0.82	.44	.54*	-.02
Optimism	Sees the positive side of things	.84	4.06	0.80	.53	.66*	.04
<u>Openness</u>							
Innovation	Looks for ways to improve products and services	.82	4.04	0.80	.53	.64*	.05
Intellectual Stimulation	Has ideas that make others rethink some of their own ideas	.87	3.99	0.88	.47	.64*	.09*
Risk-Taking	Is willing to try new things	.85	3.87	0.88	.60	.57*	-.01
<u>Conscientiousness</u>							
Time-Management	Manages his/her workload well	.80	3.98	0.91	.67	.54*	.03
Quality	Ensures work meets required quality standards	.85	4.10	0.85	.62	.53*	.04
Speed	Completes work quickly	.83	3.98	0.86	.73	.56*	.03
Problem-Solving	Is good at solving problems	.86	4.03	0.86	.52	.67*	.07*
<u>Agreeableness</u>							
Receiving Feedback	Responds well when others give feedback	.87	3.57	1.02	.64	.64*	.02
Empathy	Understands the values, needs and interests of others	.90	3.93	1.02	.75	.74*	.16*
Developing Others	Gives others opportunities to accomplish things on their own	.89	3.96	0.94	.62	.69*	.04
Recognition	Recognises people's achievements	.89	3.95	0.95	.69	.69*	.07*
Performance Correction	Is good at managing people who are underperforming	.88	3.60	1.00	.70	.66*	.00
Cooperation	Is good at coordinating his/her work with others	.87	3.87	0.93	.70	.75*	.12*
Stress Management	Is able to stay productive when facing stressful events	.89	3.93	0.93	.56	.70*	.12*
<u>Emotional Stability</u>							
Enjoyment	Has fun at work	.83	3.89	0.94	.51	.65*	.13*
Work-Life Balance	Maintains a good balance between work and other aspects of his/her life	.60	3.50	1.04	.69	.31*	-.06*
Health & Safety	Maintains a healthy lifestyle	.70	3.96	0.88	.61	.56*	.11*

a – EFA loadings for the lower-order categories loading on the higher-order five-factor model.

b – Correlation with coworkers ratings of overall effectiveness; $p < .01$ for all correlations.

c – Standardised beta when regressing coworker ratings of overall effectiveness simultaneously on all behaviours; $R^2 = .75$, $p < .01$.

* – $p < .01$.

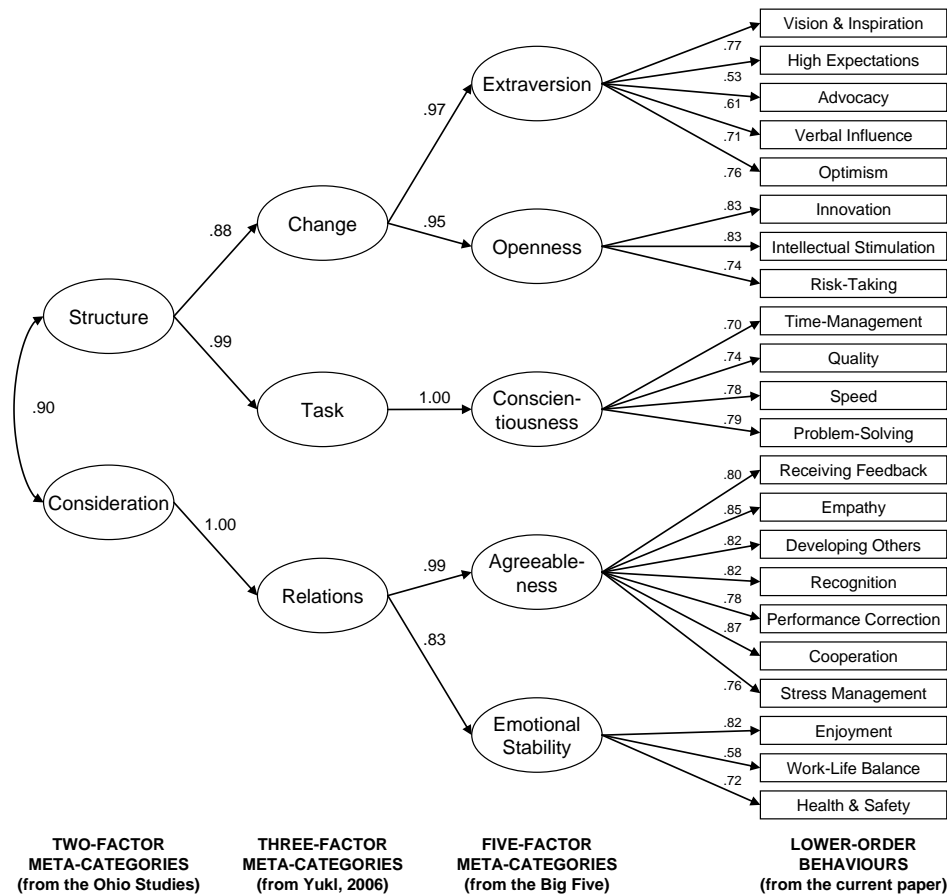


Figure 1: Nested model and path coefficients for meta-categories and lower-order categories of leader behaviour.

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