

The public leadership questionnaire: The development and validation of five dimensions of public leadership behaviors

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Abstract

In the public administration discipline, there have been various important studies on leadership. However, scholarly inquiry still lags behind related disciplines such as psychology and business administration. This study contributes by developing and validating scales measuring public leadership behavior. Based on theory and empirical analyses, five key public leader behaviors are identified and measured: (1) accountability leadership (6 items), (2) lawfulness leadership (4 items), (3) ethical leadership (7 items), (4) political loyal leadership (5 items) and (5) network governance leadership (7 items). The factor structure was tested using both exploratory and confirmatory factor analyses. Public leadership behaviors were related as expected to transformational leadership and leadership effectiveness. Furthermore, public leadership behaviors were related as expected to outcomes such as organizational commitment (positive), work engagement (positive) and turnover intentions (negative). In sum, the results suggest that the public leadership questionnaire is a valid measurement instrument that can be used by scholars to analyze public leadership questions. In the concluding section, we develop a future research agenda and discuss the potential uses of the public leadership questionnaire for scholars and practitioners.

Keywords

Leadership; public sector; publicness, supportive leadership; scale development

1 Introduction

In the public administration discipline, there have been a number of important studies on leadership (Fernandez, 2005; Kim, 2002; Terry, 2003; Wright & Pandey, 2010). However, compared to related disciplines such as psychology and business management, the public administration literature is lagging behind (Trottier, Van Wart, & Wang, 2008). Hansen and Villadsen (2010:247) recently concluded that, compared to other disciplines, “leadership theory has generally received little attention in public management research.” In a recent literature review on administrative leadership, Van Wart (2014) is more nuanced, stating that there has been a substantial development. However, he also noted that “fragmentation and conflicting nomenclature continue to be a problem, but at a more sophisticated level” (2014:13).

We notice that up until now, no research has been conducted on the construction and validation of measurement scales for specific public sector leadership behaviors. On the one hand, there are various leadership studies which are conducted in the public sector, which use general leadership concepts, such as transformational and transactional leadership (Wright, Moynihan, & Pandey, 2012) and Leader-Member Exchange (Tummers & Knies, 2013; Hassan & Hatmaker, 2014). These concepts are highly valuable, but they do not capture specific behaviors which are especially important for leaders within *public organizations*. These behaviors include executing governmental regulations (Hill & Hupe, 2009), accounting for actions to external stakeholders (Bovens, 2007) and showing political loyalty, even if this incurs personal costs (Christensen, 1991). On the other hand, there have been various studies which do take such leadership behaviors into account, such as the studies on crisis leadership (Boin & ‘t Hart, 2011), accountability leadership (Kearns, 1996) and integrative public leadership (Fernandez, 2005). However, a drawback of these studies is that they are either conceptual or use existing surveys or qualitative data to measure administrative leadership. They do not use psychometrically proven techniques to develop valid and reliable measures of public sector leadership.

We agree with Pandey and Scott (2002) that sound measurement, through the careful development of concepts and measurement scales, is highly beneficial for the advancement of public administration research and practice. The measurement instrument developed in this paper focuses on the way public leaders support their employees in dealing with numerous public sector specific challenges. Five dimensions are identified: supporting employees when dealing with issues arising from (1) accountability, (2) lawfulness (following governmental rules), (3) ethics, (4) political loyalty, and (5) network governance. We fully acknowledge that there are possible other important dimensions of public leadership behaviors (see for instance Boin & ‘t Hart, 2003; Fernandez, 2005; Borins,

2002). We chose for these five dimensions as they are all of paramount importance for public administration, evidenced by among else the amount of scholarly work devoted to it. For instance, more than 150 articles were published on network governance in the last 10 years in the top public administration journals (Groeneveld et al., 2014). Furthermore, Van der Wal et al. (2008) found that accountability and lawfulness were the most important values for the public sector. In general, we argue that the five chosen dimensions of public leadership are all essential leadership skills in the public sector. This will also be tested in this study, by analyzing the relationship between these five dimensions and leadership effectiveness (Van Knippenberg & Van Knippenberg, 2005).

The scales developed in this study have a number of potential uses. Most importantly, future scholars could use these psychometrically sound scales instead of developing ad hoc scales for public leadership behaviors, thereby potentially improving the quality of their research (DeVellis, 2003). These scales can then be used to analyze various questions. For instance, in the field of comparative public management we can carefully examine claims made concerning differences between countries or sectors. For instance, is it the case that leaders in some countries with a strong legalistic tradition (such as France and Germany) score higher on lawfulness leadership than countries with a more corporatist tradition (such as the Netherlands) (Pollitt & Bouckaert, 2011)? Furthermore, it can be analyzed whether certain leadership behaviors are more important in specific sectors. For instance, network governance leadership would be more valuable when working in environments with various stakeholders (such as water management or healthcare), while lawfulness leadership would be more valued in highly regulated sectors (such as prison and detention centers). Do leaders working in healthcare who score high on network governance leadership indeed receive higher ratings from their own supervisors than their peers?

The public leadership behavior scales also have potential uses for public management practitioners, such as directors, managers or aspiring managers. Training programs are now being developed to develop new or existing managers in the leadership behaviors which are important in their jobs. For public managers, this not only includes traditional leadership behaviors such as maintaining good relationships with your employees (Leader-Member Exchange) or developing an inspiring vision (transformational leadership), but also stimulating employees to develop networks of their own (network leadership) and how to encourage subordinates to carry out difficult political decisions (political loyalty leadership). By using before and after tests using the developed scales, it can be established whether the (new) managers are indeed scoring higher on public leadership behaviors as perceived by their own employees.

In sum, the aim of this paper is to develop a reliable and valid instrument to measure five dimensions of public sector leadership behaviors. This brings us to the outline of this paper. In Section 2, we will discuss the concept of public sector leadership, and discuss the five dimensions mentioned above. We will then describe the method (Section 3) and outline the results (Section 4) for developing a questionnaire to measure these public leadership behaviors. In establishing this new measure we subjected the developed scales to the full range of tests recommended in the scale development literature (DeVellis, 2003; Hinkin, 1998), including establishing the factor structure and reliability, and convergent and criterion-related validities, such as with transformational leadership, leadership effectiveness and work engagement. The results are based on survey data from 519 employees from various public sector organizations in the Netherlands (education, healthcare, provincial and local government). We conclude our paper (Section 5) by discussing the contribution of the developed valid and reliable public sector leadership measurement instrument to the public administration discipline.

2 Dimensions of public leadership

2.1 Background on leadership

In broad terms, there are two contrasting views on leadership in organizations (Howell & Hall-Merenda, 1999). One view is leader-focused and attempts to explain performance by analyzing specific actions leadership take themselves, and linking these directly to outcomes. This view is adopted in theories on transactional and transformational leadership (for a public sector example, see Wright & Pandey, 2010). For instance, when analyzing accountability and leadership, a 'leader-focused' strategy might be to analyze how a leader accounts for his/her actions and those of the organization. For example, does a leader interact openly with other stakeholders about events in his organization?

The second view on leadership is relationship-based, analyzing the behavior of leaders to stimulate their employees. Recent research has challenged the traditional 'top-down' paradigm and argued that leadership is a shared endeavor distributed among individuals and networks of communities (Fernandez et al., 2010; Hiller et al., 2006). Fletcher and Kaufer (2003:21) note that "New models conceptualize leadership as a more relational process, a shared or distributed phenomenon occurring at different levels and dependent on social interactions and networks of influence". When analyzing accountability and leadership using a relation-based approach, it concerns how leaders *provide employees with opportunities* to justify and explain their actions to relevant stakeholders. In other words, to what extent do employees perceive that their supervisor supports them (as

employees) to inform other stakeholders about the actions of the organization. In essence, these employees are then also conducting leadership tasks, spanning boundaries between organizations (Vroom & Yetton, 1973; Carson et al., 2007). Hence, it is not about the leader himself/herself interacting with stakeholders, it is about how he/she stimulates employees to do this. In this paper, we follow this '*relationship-based*' approach and analyze how leaders equip their employees in dealing with public sector issues.

2.2 Leaders or managers?

We will analyze the behavior of leaders show to support their employees, for instance when dealing with ethical dilemmas or accounting for organizational actions towards external stakeholders. An important question is whether such 'leaders' should not be better considered as 'supervisors', or 'managers'. Are these people really leaders? In his *Harvard Business Review* article in 1977, Zaleznik aims to distinguish managers from leaders. Managers are conservators of the existing order of affairs. They are problem solvers and leave situations as they are: If it ain't broke, don't fix it. Leaders, on the other hand, 'create' problems and aim to change the current state of affairs: "when it ain't broke may be the only time to fix it." Building upon the work of Zaleznik, Kotter (2001) argues that managers promote stability. Leaders, on the other hand, press for change and develop a vision to pursue this change.

Although the debate between leaders and managers continues, many contemporary scholars argue against strictly distinguishing between managers and leaders (see for instance Fernandez et al., 2010). They state that many managers perform leadership tasks, and many leaders perform managerial tasks. Mintzberg even argues that that one of the roles of managers is to be a 'leader' (1990:53). Hence, he views leadership as part of management. Furthermore, he argues that the role of 'entrepreneur' as essentially a managerial role, while others would argue that this is an essential leadership role (see for instance Vecchio, 2003). Concluding, we acknowledge that there is conceptual confusion regarding the distinction between managers and leaders. In this article, we will use the term leadership when analyzing how supervisors support their employees. In this way, we build upon related work in public administration (Fernandez, 2005; Van Wart, 2013) and leadership studies (Graen & Uhl-Bien, 1995).

2.3 Five dimensions of public leadership

We focus on five key leadership behaviors through which public leaders can stimulate their employees: accountability leadership, lawfulness leadership, ethical leadership, political loyal leadership and network governance leadership. This is shown in Figure 1.

Table 1 Five dimensions of public leadership behavior, including definitions of dimensions

<i>Five dimensions of public leadership behavior</i>	<i>Definition: Leaders who ...</i>	<i>Example of a high score</i>
Accountability leadership	... stimulate employees to justify and explain actions to stakeholders	A welfare director who encourages her employees to tell the press why they did not provide a welfare benefit to a certain citizen
Lawfulness leadership	... encourage employees to act in accordance with governmental rules and regulation	A school leader who emphasizes to his/her teachers that they should follow the exact regulations accompanying the upcoming SAT (a standardized test for students)
Ethical leadership	... promote employees to behave ethically	A leader making clear to employees that discrimination towards females when hiring recruits is unacceptable
Political loyal leadership	... stimulate employees to align their actions with the interest of politicians, even when this is costly	A director-general encouraging the civil servants of his directorate that they should implement the political decisions of the Minister, even when he and his employees see shortcomings.
Network governance leadership	... encourage employees to actively connect with stakeholders	A manager in a municipality stimulating her employees to go to various conferences and meetings for small and medium-sized businesses within the city, in order to make new contacts

First, we will analyze accountability leadership. Van der Wal et al. (2008) found – based on a survey of public and private sector managers - that accountability was deemed *the* most important value for the public sector. Various important scholarly books have been devoted to accountability, including leadership and accountability (such as Kearns, 1996; Leithwood, 2001). However, Bovens (2007:449-450) warns us that accountability is an elusive concept. It is an “evocative political word” and is often used as “an icon for good governance”. It is therefore necessary to properly define the concept. He notes that the most concise description of accountability would be “the obligation to explain and justify conduct”. In the context of public leadership behavior (relationship-based), we then *define accountability leadership as stimulating employees to justify and explain actions to stakeholders*. For instance, do supervisors stimulate their employees to openly discuss their own actions and those of the organization with citizens? Do they emphasize that it is important that

employees answer questions from clients? When employees perceive that supervisors indeed do this, these supervisors are said to score high on accountability leadership.

The second dimension is lawfulness leadership. Lawfulness, acting in accordance with rules, is a key public administration value. Lane (1994:144) notes that public administration is in its core about rule of law. Related to this, Van der Wal et al. (2008) found that lawfulness was the second most important public sector value. In the context of relation-based leadership, lawfulness concerns facilitating employees to act in accordance with governmental rules and regulation. This is in line with the work of Terry (2003:77), who notes that administrative leaders should be conservators, where one important task of leaders is that they prevent or reduce violations of laws. Hence, leaders should stimulate their followers to follow governmental rules and regulations, and prevent them from rule-breaking.

The concept of ethical leadership is related to lawfulness leadership. However, one key difference is that it also concerns stimulating normatively appropriate behaviors which are not necessarily laid down in regulations. Ethical leadership can be broadly defined as demonstrating normatively appropriate conduct through personal actions and relationships, and promoting such conduct to employees (Brown & Trevino, 2006). Van der Wal et al. (2008) note that incorruptibility (very much related to ethics) is the third most important value for the public sector. Related to this, Kernaghan (2003) argues that ethical values are key for public organizations. For instance, in the Australian Public Service (APS) their value statement notes that “the APS has the highest ethical standards” and “An APS employee must behave with honesty and integrity in the course of APS employment” (Kernaghan, 2003:713).

In a recent article in *The Leadership Quarterly*, Kalshoven et al. (2011) notes that ethical leadership consists of various dimensions, such as having a people orientation (respecting employees), power sharing and ethical guidance. In the context of relation-based ethical leadership, we build upon the ‘ethical guidance’ dimension of Kalshoven et al., as this emphasizes the how leaders stimulate their employees to follow ethical codes of conduct. Ethical guidance (here: ethical leadership) is defined as communicating about ethics to employees, explaining ethical rules, and promoting ethical behavior (Kalshoven et al., 2011:53-54). An example of ethical leadership would be to openly discuss during a work meeting an incident of alcohol and drug abuse which happened during a party organized by the organization, and show why this is inappropriate. Another example of ethical leadership is leaders emphasizing to employees that discrimination towards females during hiring or promotion processes is unacceptable (Kaptein et al., 2005).

The fourth dimension we identify is political loyal leadership. The relationship between politicians and civil servants can be characterized as a principal-agent relationship

(Gailmard & Patty, 2013). Civil servants (the agents) are performing actions for politicians (the principals), who cannot fully control these civil servants. How can politicians then make sure that civil servants develop and implement policies which have desirable policy outcomes? This among else depends on the degree to which these civil servants are loyal towards their political principals (t Hart & Wille, 2002; Putnam, 1973). Kleinig (2007) argues that loyalty is shown when people continue to show commitment to others, even if such commitment is costly. Related to this, Hajdin (2005:261) notes that when loyalty is *aligned* with other criteria, loyalty is redundant: "If loyalty were always in harmony with other considerations, we would not have the concept [of] loyalty". In the case of civil servants and politicians, loyalty then exists when civil servants continue to show commitment towards politicians, even when this means that they have to make sacrifices. For instance, they might follow the directions of politicians even when it conflicts with their own ideals or interest, when it will result in personal risks for the civil servants, or when it will negatively affect their own department. When relating this to relation-based leadership behaviors, political loyal leadership can be described as supervisors stimulating employees to align their actions with the interest of politicians, even when this is costly for them. For instance, a supervisor might encourage employees to implement political decisions properly, even when he/she and the employees see shortcomings of these decisions.

The final dimension of public leadership we identify is network governance leadership. As opposed to the first four dimensions, network governance leadership is less aligned with the historical characteristics of public administration, such as loyalty to politicians and being accountable to various groups of stakeholders. However, developments such as budget austerity, the economic and fiscal crisis and reduced legitimacy of governmental intervention have stimulated civil servants to work together with other stakeholders to tackle the problems of contemporary society (Sorensen & Torfing, 2011; Ansell & Gash, 2008; Denhardt & Denhardt, 2011). We will examine to what extent leaders stimulate their employees to develop networks and increasingly engage in existing networks (see also Hannah & Lester, 2009). In the context of relation-based leadership behavior, network governance leadership is then defined as encouraging employees to actively connect with stakeholders (outside their own department). A supervisor would score high on network governance leadership when he/she encourages encouraged employees to spend time connecting to other stakeholders, to stimulate them to spend a lot of time maintaining contacts and to encourage employees to introduce their colleagues to their own contacts.

2.4 Public leadership and related concepts

After having described the five dimensions of public leadership behaviors, we can investigate the examine its expected theoretical relationships with other concepts. If the empirical relationships between the concepts are in line with those suggested by the theory, we can be more confident that we have truly measured these five dimensions, a process known as construct validity (DeVellis, 2003).

First, we will analyze the 'convergent validity' of the public leadership dimensions. The public leadership dimensions will show 'convergent validity' when they are related to similar constructs in the expected directions. Given that the dimensions of public leadership are leadership constructs, we would expect them to be positively related to established leadership constructs such as transformational leadership (Bass & Riggio, 2012) and perceived leadership effectiveness (Van Knippenberg & Van Knippenberg, 2005).

It is expected that when leaders score higher on the dimensions of public leadership (for instance, stimulating employees to be accountable, ethical and follow the law), they would also be seen as more transformational leaders. For instance, Bass and Steidlmeier (1999) argue that truly transformational leadership has a strong moral and ethical backing. Furthermore, research found that leaders with higher perceived moral reasoning and integrity are seen as more transformational leaders (Brown & Trevino, 2006). Related to this, it is also expected that leaders who score higher on the dimensions of public leadership are perceived as more effective. Van Knippenberg and Hogg (2003) argue that leadership processes are enacted in the context of shared group memberships, where leaders, as group members, ask their employees to exert themselves on behalf of the collective. They note that the leader's ability to speak to employees as group members, plays a key role in leadership effectiveness. When looking at the (relationship-based approach) of public leadership, we therefore also expect that when leaders are able to motivate their employees to among else be accountable, show integrity and be loyal to politicians, they are perceived as more effective.

Based on the above, we formulate the following hypothesis:

Hypothesis 1: The dimensions of public leadership are positively related to transformational leadership and to perceived leadership effectiveness.

Next to construct validity (relating public leadership to other leadership constructs), we also examine criterion-related validity: how well are the public leadership dimensions related to potential outcomes of these leadership behaviors? To assess criterion-related validity for the dimensions of public leadership, we will examine relationships with various employee

outcomes. We include employee attitudes (organizational commitment, job satisfaction, work engagement), employee behaviors (organizational citizenship behavior/OCB) and intended employee behavior (turnover intentions). We expect a positive relationship between the dimensions of public leadership and organizational commitment, job satisfaction, work engagement and OCB. Mullen and Jones (2008) note that when leaders (in their case school principals) enable employees (teachers) to develop themselves in terms of being accountable, lawful and ethical, many positive effects will occur, such as improved trust, satisfaction and commitment. More specifically, Den Hartog and De Hoogh (2009) found that perceived ethical leader behavior was positively related to organizational (affective) commitment. A negative relationship is expected between the dimensions of public leadership and turnover intentions. When employees are not empowered to for instance connect with other stakeholders (low network governance leadership) or when leaders are encouraging rule-breaking instead of rule-following behavior (low lawfulness leadership), employees may decide to leave their job (Martin et al., 2013; Chen et al., 2011). Hence, we formulate the following hypothesis:

Hypothesis 2: The dimensions of public leadership are positively related to organizational commitment, job satisfaction, work engagement and organizational citizenship behavior and negatively related to turnover intentions.

3 Methods

3.1 Steps in scale development and validation

The empirical scale validation consists of three phases. The goal of the first phase was to operationalize the dimensions of public leadership. Items were generated based on our literature review targeting the following five dimensions of public leadership. While generating items, we took into account recommendations of scale development by DeVellis (2003), such as writing short items, using simple words, avoiding double-barreled items and avoiding double negatives. Based on various discussions between the authors about among else content and face validity, we chose the best fitting items for each dimension. The outcome of this first phase was a set of 32 items to measure the five underlying dimensions of public leadership behaviors: accountability (7 items), integrity (7 items), political loyalty (6 items), network governance (7 items) and lawfulness (5 items) leadership. These numbers of items are in line with the recommendations of Hinkin (1998, based on Harvey et al., 1985) who note that at least four items per scale are needed to test the homogeneity of items with each latent construct. In line with Hinkin (1998:110), we also

used 5-point Likert scales, as he notes that “it is suggested that the new items be scaled using 5-point Likert scales”. The final included items (after all analyses) are shown in Appendix 1.

In the second phase, the psychometric properties of these scales are tested using a sample of 519 respondents, based on independent surveys from various public sectors organizations in the Netherlands: education (n=58), healthcare (n=304) and provincial and municipal government (n=137). The mean age of respondents was 42.8 years (SD=11.9). 43.2% of our respondents is male, and hence 56.8% is female. The factor structure is tested in two ways. An exploratory factor analysis, using SPSS, is conducted on 200 randomly selected employees. Hereafter, a confirmatory factor analysis, using *Mplus*, is performed on the other 319 employees. We chose these selections given that for confirmatory factor analysis more respondents are needed: Hinkin recommends minimally 150 observations for exploratory factor analysis and 200 for confirmatory factor analysis. Lastly, we assessed reliability by examining the Cronbach’s alphas.

In the third phase, the convergent and criterion-related validity of the measurement instrument is tested by correlating the dimensions of public leadership behaviors with several other variables. In order to study convergent validity, we included transformational leadership and perceived leadership effectiveness in our analysis. To establish criterion-related validity we studied the correlations of our public leadership dimensions with affective commitment, work engagement, turnover intentions, organizational citizenship behavior (OCB) and job satisfaction.

Transformational leadership was measured using the measurement instrument developed by Carless, Wearing & Mann (2000). We measured transformational leadership with seven items. Cronbach’s alpha was very good at .945.

Perceived leadership effectiveness was measured using the scale developed by Van Knippenberg & Van Knippenberg (2005). We used four items with a reliability of .948.

Organizational commitment was measured using the affective commitment dimension (Allen & Meyer, 1990). This consists of seven items. The reliability of these items was good at .776.

Job satisfaction was measured with a single item: ‘Generally speaking, I am very satisfied with my job’. This was on the basis that Wanous et al. (1997) have demonstrated that satisfaction can be reliably measured with a single item.

Work engagement was measured using the scale developed by Schaufeli et al. (2006). The reliability of the 9-item scale was very good: .928.

Turnover intentions were measured using the work of Bozeman & Perrewé (2001). The 5-item scale was reliable at .869.

Organizational citizenship behavior (OCB) was measured using the scale of MacKenzie, Podsakoff & Fetter (1991). The reliability of this 12-item measure was sufficient at .711.

3.2 Measurement quality

The data for all the items were obtained from single respondents and are thus potentially subject to common method bias (Podsakoff, MacKenzie, Lee & Podsakoff 2003). Although a recent study in *Organizational Research Methods* has suggested that “in contrast to conventional wisdom, common method effects do not appear to be so large as to pose a serious threat to organizational research” (Lance, Dawson, Birkelbach & Hoffman 2010:450), we have addressed this potential problem in various ways. We tried to boost construct validity by formulating the questionnaire items about public leadership such that they refer to employees’ perceptions of specific concrete behaviors of their supervisors. The items measuring employees’ commitment, work engagement, turnover intentions, OCB and job satisfaction all refer to specific concrete attitudes and behaviors undertaken by individual employees. Moreover, in the survey design, we spread items relating to individual variables among various sections of the questionnaire. Further, to check for common methods bias in the data, we conducted two sets of CFAs, comparing the hypothesized structure with a one-factor model. The one-factor model had a worse fit (CFI=.659; TLI=.650; RMSEA=.133 compared to CFI=.981; TLI=.979; RMSEA=.064). These results provide evidence against there being a bias stemming from common method variance (Podsakoff et al. 2003).

4 Results

4.1 Psychometric properties

Exploratory factor analysis

To examine the dimensionality of the public leadership scales we firstly carried out an exploratory factor analysis. We included all 32 generated items in the analysis. We used principal component factoring and oblimin rotation, as this allows the factors to be correlated (Tummers, 2012; Field, 2005). We extracted five factors with eigenvalues greater than one. These factors explained a total of 75.51% of the total variance. This exceeds the minimum of 60% for scale development (Hinkin, 1998). The factor structure was as we had anticipated, although three items (ACC7, LOY1, LAW1) loaded on two dimensions (factor loadings >.30). Therefore, these items are deleted and will not be used in further analyses. The factor loadings are reported in Table 2.

Table 2 Exploratory factor analysis

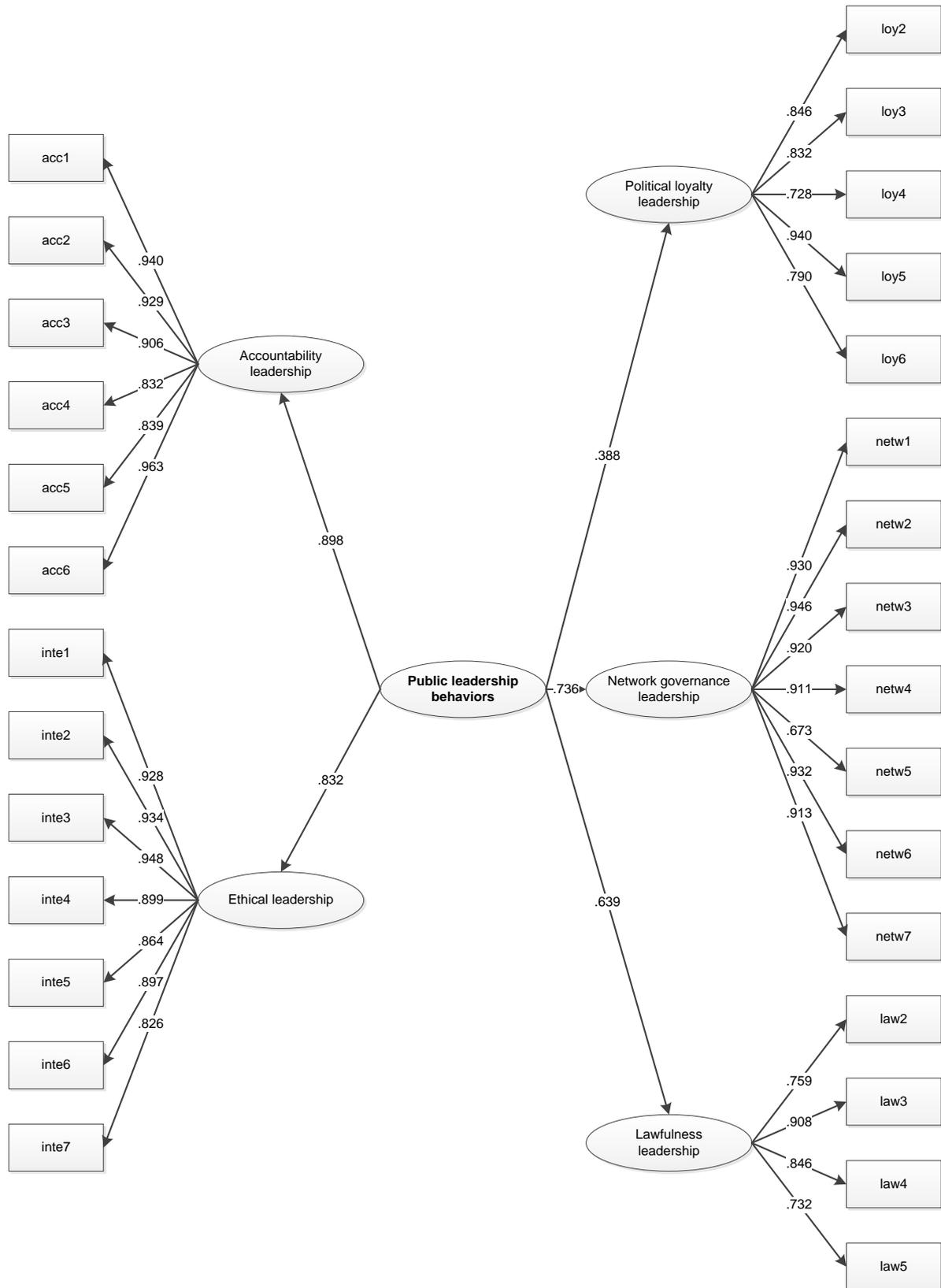
<i>Item</i>	<i>Factor loadings</i>				
	F1	F2	F3	F4	F5
Accountability leadership 1					-.77
Accountability leadership 2					-.83
Accountability leadership 3					-.67
Accountability leadership 4					-.83
Accountability leadership 5					-.73
Accountability leadership 6					-.72
Accountability leadership 7	.39				-.47
Lawfulness leadership 1				.41	-.54
Lawfulness leadership 2				.69	
Lawfulness leadership 3				.48	
Lawfulness leadership 4				.80	
Lawfulness leadership 5				.79	
Ethical leadership 1			.79		
Ethical leadership 2			.85		
Ethical leadership 3			.95		
Ethical leadership 4			.80		
Ethical leadership 5			.82		
Ethical leadership 6			.78		
Ethical leadership 7			.63		
Political loyalty leadership 1	.32	.69			
Political loyalty leadership 2		.72			
Political loyalty leadership 3		.84			
Political loyalty leadership 4		.80			
Political loyalty leadership 5		.74			
Political loyalty leadership 6		.90			
Network governance leadership 1	.88				
Network governance leadership 2	.91				
Network governance leadership 3	.80				
Network governance leadership 4	.75				
Network governance leadership 5	.64				
Network governance leadership 6	.84				
Network governance leadership 7	.82				

Only coefficients of >.30 are presented.

Confirmatory factor analysis

Using the results of the exploratory factor analysis, we performed confirmatory factor analyses. First, we tested a first-order model in which 6 items loaded on the dimension 'accountability leadership', 7 items loaded on 'integrity leadership', 5 items loaded on 'political loyalty leadership', 7 items loaded on 'network governance' and 4 items loaded on 'lawfulness leadership'. To assess the model fit, we examined the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). Acceptable fit is evidenced by a CFI and TLI of .90 or higher, and a RMSEA of .08 or lower (Bentler, 1990). The initial CFA showed acceptable fit indices (CFI=.932; TLI=.925; RMSEA=.064). However, the descriptives of the variables included showed that these were non-normally distributed. Therefore, we performed another CFA identifying all variables as categorical. The fit indices improved substantially (CFI=.981; TLI=.979; RMSEA=.064). All items loaded significantly on the latent variables ($p < .001$) with standardized factor loadings ranging from .673 to .948. Since we conceptualize that these five variables are dimensions of the underlying public leadership behaviors construct, we also conducted a second-order CFA. All five dimensions (accountability, integrity, political loyalty, network governance and lawfulness) loaded on the latent variable 'public leadership behaviors'. The results of this test confirm the proposed structure and all fit indices are good (CFI=.980; TLI=.978; RMSEA=.065). The factor loadings of the dimensions varied between .388 and .898. The figure displayed below shows the final factor structure of the items measuring the five dimensions of public leadership behaviors:

Figure 1 Hierarchical confirmatory factor analysis for public leadership dimensions



Correlations and Cronbach alpha

As shown in Table 3, all five dimensions are significantly correlated. The correlations vary between .223 and .666. Political loyalty is somewhat less correlated with the other dimensions. According to Kalshoven et al. (2011) these correlations are similar to the correlations between other leadership measures.

In order to test whether our scale is indeed multi- and not one-dimensional, we conducted a CFA in which we loaded all 29 items on one factor. The results show that all fit indices (CFI=.828; TLI=.814; RMSEA=.190) fall below the commonly accepted thresholds and thus indicate that our measure is indeed multi-dimensional.

Finally, we assessed the scale's reliability by examining the coefficients of Cronbach's alpha's. All five dimensions of public leadership show sufficient reliability (>.70), as shown in the table below.

Table 3 Cronbach alpha's, means, standard deviations and correlations of the dimensions of public leadership

	Cronbach's alpha	M	SD	1.	2.	3.	4.
1. Accountability leadership	.929	3.64	.73				
2. Lawfulness leadership	.771	3.47	.68	.429**			
3. Ethical leadership	.933	3.35	.79	.666**	.528**		
4. Political loyalty leadership	.888	3.07	.71	.223**	.299**	.288**	
5. Network governance leadership	.949	3.30	.85	.622**	.327**	.516**	.337**

** p<.01

In summary, the results of our analyses show that the 29-item five-dimensional scale measuring public leadership behaviors is a reliable measure.

4.2 Convergent and criterion-related validity

In order to establish convergent validity, we examined the relationship between the five leadership dimensions on the one hand and two scales for leadership in general (i.e. transformational leadership and leadership effectiveness) on the other hand. We tested the hypotheses that there were positive relationships between the dimensions of public leadership and transformational leadership and leadership effectiveness. The correlation matrix displayed below shows that all dimensions of public leadership behaviors are significantly related to both transformational leadership (r ranging from .158 to .696) and

leadership effectiveness (r ranging from .131 to .652). Therefore, we can conclude that hypothesis 1 has been supported. The lowest correlations were for political loyalty leadership. This could be expected as loyalty is shown when people continue to show commitment to others, even if such commitment is costly (Kleinig, 2007).

Table 4 Correlations between dimensions of public leadership and related leadership constructs

	Transformational leadership	Leadership effectiveness
1. Accountability leadership	.696**	.652**
2. Lawfulness leadership	.389**	.406**
3. Ethical leadership	.646**	.609**
4. Political loyalty leadership	.158**	.131*
5. Network governance leadership	.583**	.511**

** p<.01; * p<.05

To test the criterion-related validity of the public leadership behaviors we analyzed the relationships between the five dimensions and several hypothesized effects: organizational commitment, work engagement, turnover intentions, OCB and job satisfaction.

All five dimensions are significantly related to organizational commitment. Correlations varied between .150 (political loyalty) to .399 (accountability). Four of the five dimensions are significantly related to work engagement. The only exception is political loyalty. Other correlations varied between .123 (network governance) and .195 (lawfulness). Four of the five dimensions are significantly related to turnover intentions. Again the only exception is political loyalty. The other correlations varied between -.095 (network governance) and -.221 (integrity). OCB is significantly related to all dimensions except political loyalty. The other correlations varied between .105 (network governance) and .202 (lawfulness). Finally, job satisfaction is significantly related to all dimensions. Correlations varied between .106 (ethical) and .272 (accountability). Overall, these results provide evidence for hypothesis 2.

Table 5 Correlations between dimensions of public leadership and several outcome variables

	Organizational commitment	Work engagement	Turnover intentions	OCB	Job satisfaction
1. Accountability leadership	.399**	.150**	-.209**	.107*	.272**
2. Lawfulness leadership	.333**	.195**	-.203**	.202**	.237**
3. Ethical leadership	.382**	.173**	-.221**	.133*	.106*
4. Political loyalty leadership	.150**	.055	-.057	.049	.236**
5. Network governance leadership	.306**	.123**	-.095*	.105*	.200**

** p<.01; * p<.05

To summarize, these analyses have shown that four of the five public leadership dimensions are significantly related to other established constructs to which it should theoretically relate (i.e. organizational commitment, work engagement, turnover intentions, OCB and job satisfaction). The fifth dimension (political loyalty) is significantly related to organizational commitment and job satisfaction. The results of these analyses thus largely support the criterion-related validity of the five dimensions of public leadership.

5 Conclusion

The purpose of this research was to establish validated scales for five possibly important dimensions of public leadership behaviors. Based on a theoretical discussion, defining the dimensions and writing of items, initial scales were developed. This scale was tested and refined using exploratory factor analysis, confirmatory factor analysis. The results indicate that five dimensions of public leadership are valid: (1) accountability leadership (6 items), (2) lawfulness leadership (4 items), (3) ethical leadership (7 items), (4) political loyal leadership (5 items) and (5) network governance leadership (7 items). All final items are shown in Appendix 1. The construct validity of the scale was examined by looking at the relationships with transformational leadership and leadership effectiveness. Furthermore, the convergent validity tests analyzed whether the dimensions were related to various employee outcomes such as engagement and job satisfaction. The overall significant correlations found indicate that the scales behaves as expected. This increases our confidence that public leadership behaviors were measured with the proposed scales.

Like all studies, this study has limitations. It should be viewed as a first endeavor at developing scales for public leadership behaviors. A first limitation is that the scales were

only tested in one country. Although the study's generalizability was improved by the fact that the sample included a large number of public employees, working in different occupations, positions and places, one should be cautious in generalizing this to other domains. A logical direction for further research would be to test the public leadership dimensions using a comparative approach, examining different kinds of sectors within different countries. It could be very interesting to analyze the scales in countries which are quite different from the Netherlands, both in cultural terms (Hofstede, 2001) or in administrative-legal tradition (Pollitt & Bouckaert, 2004).

A second limitation is the cross-sectional design of this research. Correlational analyses were used to analyze the relationship between public leadership behaviors and among else potential outcomes such as job satisfaction and organizational citizenship behavior. Cross-sectional designs cannot establish causality or identify long-term effects. It could be interesting to use longitudinal designs to analyze the long-term effects of public leadership behaviors. Furthermore, researchers could use multiple sources to analyze these effects. For some relationships the use of self-reports is justified, as the nature of the variables – such as job satisfaction – can best be analyzed using self-reports (Van Kalfhoven et al., 2011). However, other constructs – such as leadership effectiveness – could be measured using objective measures such as yearly ratings by their own supervisors.

There are a number of potential uses for the public leadership scales. As noted, most importantly, future scholars could use these psychometrically sound scales instead of developing ad hoc scales for public leadership behaviors, thereby potentially improving the quality of their research (DeVellis, 2003). Also for practitioners, the scales can be important. For instance, directors can analyze whether their managers show essential public leadership behaviors. Talent assessment and selection organizations can determine which leadership behaviors are important for a specific job, and measure the degree to which candidates possess these behaviors. Lastly, in training programs the scales can be used as before and after tests, analyzing whether the training helped to score higher on certain public leadership behaviors.

Concluding, this research has developed five dimensions of public leadership behavior, and shows how this can be valuable for both scholars and practitioners alike. Additional research, both scholarly as well as applied, is needed to explore the concept and its associated value further.

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Appendix: Public leadership behaviors questionnaire

Dimensions of public leadership behaviors	
<i>Every item starts with: My supervisor ...</i>	
Accountability leadership	
1.	... Encourages me and my colleagues to explain our actions to various stakeholders
2.	... Stimulates us to inform stakeholders of our way of working.
3.	... Provides us with the possibility to explain our behavior to stakeholders.
4.	... Emphasizes that it is important that we answer questions from clients.
5.	... Strives to ensure that we are openly and honestly share the actions of our organizational unit with others
6.	... Stimulates us to explain to stakeholders why certain decisions were taken
Lawfulness leadership	
1.	... Emphasizes to me and my colleagues that it is important to follow the law
2.	... Gives me and my colleagues the means to properly follow governmental rules and regulations
3.	... Emphasizes that my colleagues and I have should carry out government policies properly
4.	... Ensures that we accurately follow the rules and procedures.
Ethical leadership (based on Van Kalshoven et al., 2011)	
1.	... Clearly explains ethical codes of conduct.
2.	... Explains clearly what is expected of my colleagues and me regarding integrity
3.	... Clarifies integrity guidelines to us
4.	... Ensures that my colleagues and I follow codes of integrity
5.	... Clarifies the likely consequences of possible unethical behavior by myself and my colleagues
6.	... Stimulates the discussion of integrity issues.
7.	... Compliments us when we behave according to integrity guidelines
Political loyalty leadership	
1.	... Encourages me and my colleagues to implement political decisions properly, even when this results in weaker strategic ambitions of the department
2.	... Encourages me and my colleagues to support political decisions, even when other stakeholders confront us with it
3.	... Encourages me and my colleagues not to jeopardize the relationship with political heads at risk, even if that entails risks
4.	... Stimulates me and my colleagues to implement political decision, even if that means additional responsibilities should be take up
5.	... Encourages me and my colleagues to defend political choices, even if we see shortcomings
Network governance leadership	
1.	... Encourages me and my colleagues to maintain many contacts with other organizations
2.	... Encourages me and my colleagues to invest substantial energy in the development of new contacts
3.	... Stimulates me and my colleagues to regularly work together with people from our networks
4.	... Stimulates me and my colleagues to develop many contacts with people outside our own department
5.	... Spends a lot of time maintaining his / her contacts
6.	... Stimulates me and my colleagues to introduce others to contacts of our own networks
7.	... Encourages me and my colleagues to be a 'linking pin' between different organizations