Leadership training, leadership strategies and organizational performance

Designing an experiment to test the causal effect of leadership on performance

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Abstract

Leadership is fundamentally important for improving public sector performance, but the existing literature has severe endogeneity problems. Using a field experiment with 720 Danish leaders and 23.000 employees, the LEAP (Leadership and Performance) project will try to overcome these problems. We use a field experiment to study the effects of leadership training and leadership strategies on organizational performance. The research question is how leadership training affect leadership strategies, and how these strategies affect performance? This paper takes three steps towards answering this question. First, we discuss the conceptualization of leadership strategies. Second, we present our research design and clarify how we expect the leadership training to affect leadership strategies. Third, we discuss briefly how we measure the key concepts: Leadership and performance. Our aim is to develop stronger conceptualizations and operationalizations of transformational and transactional leadership strategies which do not confound leadership strategies with their effects. It is also important to understand how leadership strategies might have different effect in different settings and for different performance measures. Finally, developing leadership training programs to accommodate the problem of causality is also a very important task.

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Introduction

Improving performance in the public sector becomes more and more central for the Public Administration discipline (Rainey, 1997; Boyne 2003, Hondeghem & Perry, 2009; Nasi, 2011), and the focus is very much on output and outcome (Hondeghem & Perry, 2009). Boyne (2003) finds that managerial variables (including leadership style and expertise, organizational culture, HRM and strategy) are a stronger source of performance improvement compared to resources, regulation, market structure and organization, and other researchers increasingly agree (Moynihan & Ingraham 2004; Fernandez 2005; Parry & Sinha, 2005; Trottier et al., 2008; Moynihan et al., 2012; Van Wart 2013; Hassan & Hatmaker, 2014). However, even though the field of public administrative leadership has made progress (Van Wart, 2013), the debate about *how* leadership is important, *what* leadership to use, and *for what* and *when* leadership matters, is still very current (Boyne, 2003; Moynihan & Ingraham, 2004; Wright et al., 2012; Moynihan et al., 2012; Van Wart, 2013). Recent studies have compared different leadership strategies in public sector settings to understand what good leadership is under different circumstances (Fernandez et al., 2005; Trottier et al., 2008), and the call for additional research in different environments, groups, samples and settings is frequently repeated (Fernandez, 2005; Vandenabeele, 2008; Trottier, 2008; Moynihan et al., 2012; Wright et al., 2012). As most existing studies rely on potentially biased perception data for the dependent variable and/or run the risk of serious omitted variables or endogeneity (e.g. Moynihan et al., 2012), the extent to which public service performance is actually improved by leadership remains unclear. To strengthen the knowledge of causality, longitudinal data with objective performance measures are needed when studying leadership in the public sector (Vandenabeele, 2008; Trottier, 2008; Moynihan et al., 2012).

This call for better causal identification when studying performance-effects is also present in the mainstream leadership literature, as it is inherently challenging to separate causes from consequences of leadership (e.g. Knippenberg & Sitkin, 2013). Organizations with specific profiles attract and select specific types of leaders, performance can affect leadership strategies, and self-reported performance data are likely to be biased. Therefore, many of the existing studies within the field have struggled with common source bias and endogeneity problems, and there is still a general need for knowledge about causal performance effects of leadership (Antonakis et al., in press).

The LEAP project (Leadership And Performance) will begin to close these gaps in the literature. The research question in the overall project is how *leadership training affects leadership strategies, and how* *these strategies affect performance.* It is important to find out what types of leadership matter for public performance improvement by investigating the best known leadership strategies in the leadership literature in form of transformational and transactional leadership (Knippenberg & Sitkin, 2013). Transactional leadership represents a "hard" leadership strategy based on stick or carrot, while transformational leadership represents a "soft" leadership strategy aimed at increasing the employees' motivation to achieve organizational goals. Stick and carrot might (sometimes) be without effects on the employees, and transformational strategies might not succeed in affecting motivation, but we measure the leaders' behavior, because the tendency in the mainstream literature to confound leadership strategies with their effects should be avoided (e.g. Yukl, 1999; 2010; Knippenberg & Sitkin, 2013). In this project, we will not uncritically use existing measures of transformational and transactional leadership strategies. Instead, we propose new and hopefully clearer conceptual definitions and operationalizations of the leadership strategies, thus separating the leadership concepts from their expected consequences.

We further intend to begin answering the question of *when* leadership matters by testing the leadership strategies in both public and private organizations, both welfare service provision and financial operations and in sectors with no, current or recent organizational change. While tax organizations and bank branches are focused on finances and have very similar employees and tasks (Jensen 2004: 113), they differ in ownership (public/private). For welfare provision, we focus on education of children of all ages, and the ownership variation is between public and private schools, public and private high schools and public and private daycare centers. Schools, daycare centers and high schools also differ in regard to organizational change. Including five sectors with variations on three dimensions thus address the call in the public administration literature for more knowledge as to when leadership strategies differ in different settings.

The research design is longitudinal. We develop leadership training programs which can be expected to induce (1) transformational leadership, (2) transactional leadership and (3) the combination of transactional and transformational leadership. Managers from all five sectors are randomly assigned into one of the three training programs or a control group. Previous literature suggests that leadership can be taught (Doh, 2003) and that systematic leadership training can affect leadership strategy (Jung & Avolio 2000; Dvir et al. 2002). The project thus induces variation in leadership strategies, and since we have access to objective data in all sectors, the project contributes with knowledge about the casual effects of leadership strategies.

The aim of the LEAP project is to establish a causal chain from leadership training to leadership strategy to organizational performance. Even a null finding on either the relationship between leadership training and leadership strategy or between leadership strategy and performance is highly relevant because the literature strongly expects positive effects (Bass 1999; Avolio et al. 2009; Dvir et al. 2002). If we find no effect of the investigated leadership strategies, it suggests that the investigated types of leadership may not be a feasible way to improve performance. If our leadership treatments do not affect the participants' leadership strategies, although the treatments are more intense than existing treatments in the literature, which had a strong effect (e.g. Hassan et al., 2010; Dvir et al. 2002), this finding would also contribute to our understanding of how we should (not) design leadership training.

In this paper, we hope to contribute to stronger conceptualizations and operationalizations of transformational and transactional leadership strategies which do not confound the leadership definitions with their effects and better understanding of the circumstances under which leadership matters. In the LEAP project, we will investigate different leadership strategies in varying settings, using multiple performance measures and developing leadership training programs to accommodate the problem of causality by designing a longitudinal field experiment. This paper takes three steps towards this goal. First, we discuss the conceptualization of leadership strategies. Second, we present our research design and clarify how we expect the leadership training to affect leadership strategies. Third, we discuss briefly how we measure the key concepts: Leadership and performance.

Conceptualizating leadership strategies

Leadership can be collective or individual (Hiller et al., 2006), it can be formal or informal (Van Wart, 2012), political (policy elite and highest authorities), organizational (personnel with formal authorities) (Morse and Buss, 2007), or it can be executed in alliances and networks or by the owner of a firm or an organization. In the LEAP project, we focus on individual, formal leadership. Each leader is hired into a defined position with authority and resources (Van Wart, 2012). Following Van Wart (2012), we focus on how organizational leaders affect employees, although still recognizing that leaders do many things. They lead people, production, and change, and they rarely have the luxury of focusing only on maintenance or change or only on followers, tasks or organizational alignment (Van Wart, 2012 5, 23). In our terminology, leadership strategy is the intentional actions which the leader expects to manifest a particular quality or outcome (Giddens, 1993: 83). Linking leadership strategies and performance, we are especially interested in outcomes which are part of what we define as organizational performance. We see performance as attaining the goals defined by the owner or political sponsor, and the relevant leadership strategies are thus behaviors intended to make employees achieve organizational goals.

Leadership varies due to non-strategic factors such as traits (e.g. intelligence, self-confident, decisiveness, energy, personal integrity), skills (e.g. communication skills, social skills, technical skills, see Van Wart, 2012;) and style (e.g. authoritative, democratic, coaching, see Van Slyke & Alexander, 2006), and the same leader might apply different strategies to achieve organizational goals. But we argue that there are more generic patterns. Below, we argue that the distinction between transactional and transformational leadership strategies constitutes a rather generic typology.

The distinction between transactional and transformational leadership

The basic distinction between "hard" leadership based on stick or carrot and "soft" leadership based on increasing the employees' motivation to achieve organizational goals has been known a long time and has been conceptualized in many different ways. For example, McGregor (1960) developed Theory X and Theory Y, where Theory X assumes that employees are inherently lazy and will avoid work if they can and therefore need to be closely supervised, while Theory Y assumes that employees are self-motivated. This distinction was first conceptualized by political scientist James Burns (1978) as transactional and transformational leadership, and further developed by Bernard M. Bass into the "The full-range leadership theory" (Avolio & Bass, 1999; Antonakis et al., 2003). According to Bass, transactional leadership is based on transactions of pecuniary and non-pecuniary character, whereas transformational leadership is based on the inspiration and direction of individual effort (Bass, 2008). While transactional leaders reward employees for doing what the leaders want them to do or sanction them if their work effort is unsatisfactory, transformational leaders transform employees by for example raising their awareness of the importance of organizational goals (Bass 1985; Antonakis et al. 2003; Podsakoff et al. 2006). In other words, transactional leadership is a leadership strategy which makes (unchanged) employees perform better through their self-interest, while transformational leaders affect performance through transformation of employees. Traditionally, transformational leadership enjoys the reputation of being a particular – if not the most - effective leadership strategy and has by far enjoyed the greatest empirical attention (Antonakis et al., 2003; Knippenberg & Sitkin, 2013). However, a recent critic has been raised in the leadership literature concerning the confounding of the leadership definitions with their effects (Knippenberg & Sitkin, 2013). Below, we discuss how conceptual definitions of first transformational leadership and then transactional leadership can separate the leadership concepts from the expected consequences of enacting the leadership strategies.

Transformational leadership

A core element of transformational leadership is the articulation of a clear and compelling vision. Especially within the Public Administration literature, emphasizing the visionary element of transformational leadership behavior is in line with key theoretical contributions (Wilson, 1989) as well as empirical leadership studies (Wright, 2007; Wright & Pandey, 2010; Wright et al., 2012). The project defines the visionary component of transformational leadership as entailing three aspects:

First, the transformational leader develops a vision of the core goals of the organization in a clear manner. *Developing the vision* thus concerns whether the transformational leaders process the overall determined goals and develop a set of clear and well-specified goals. Setting clear goals is important, because clear goals are an important driver of employee action and performance (Latham & Yukl, 1975; Locke & Latham, 2002) and motivation (Wright, 2007).

Second, the transformational leader strives to share the vision with the employees, who are supposed to ultimately execute it. When s*haring the vision* leaders with a transformational leadership strategy seek to communicate the vision to the employees and establish a clear understanding that things are done in order to reach the vision goals. Generating awareness of the vision and how the work contributes in reaching goals is essential for employees to act upon it (Paarlberg & Perry, 2007). Hence, transformational leaders both try to articulate the direction in which the organization is heading and how the day-to-day activities and actions of the employees support the achievement of the goals and missions (e.g. public service mission) (Paarlberg & Perry, 2007; Paarlberg & Lavigna, 2010)

Third, transformation leaders make an effort to sustain the shared vision in the short and the long run. When *sustaining the vision*, the transformational leader strives to facilitate acceptance of and collaboration to achieve the vision goals as well as making an effort to generate continuously enthusiasm hereof. By continuously emphasizing why employees' work contributes to the organization and its vision, transformational leaders thereby attempt to reinforce employees' perceptions of task significance and the energy to pursue certain actions in the short as well as the long run (Wright et al., 2012).

We conceptualize the transformational leadership strategy as all of these three behaviors. Therefore, we see transformational behaviors as behaviors to develop a vision that reflects the core organizational goals, seeking to share the vision with the employees and to sustain the employee's attention to the goals. In line with Burn's and Bass' original definitions of transformational leadership and recent studies of the strategy in public administration, in order to be transformational, the behavior should be carried out with the intend to activate employees' higher order need and thereby induce them to transcend their own self-interest for the sake of the organization (Bass, 1990; Antonakis et al., 2003; Podsakoff, 2006; Wright & Pandey 2007; Wright et al., 2010). We do not propose that the leader per definition must cause transcendent of self-interest, but stress the intention of the action. In sum, we define transformational leadership as "*Behaviors seeking to develop, share, and sustain a vision with the intend to facilitate that employees transcend their own self-interest and achieve organization goals".* We argue that these three characteristics are reflections of the same (latent) endeavor to transform employee motivation and values, and that the characteristics cannot and should not be separated in practice. Instead, transformational leaders exhibit behaviors that develop, share and sustain a vision through a set of complex and intertwined actions.

Transformational leadership strategies might not succeed in making the employees transcend self-interest, and even if this happens, it may not affect performance positively. In other words, transformational leaders are by no means exceptional *per se*. Whether transformational leaders succeed in making employees transcend their self-interest to accomplish organization goals may depend on important contingencies such as employee perception of the desirability and importance of the stated vision (vision valence), the leader, employee motivation or context. Figure 1 shows how our understanding of transformational leadership (right part of the figure) and of transactional leadership which is discussed below.

Figure 1. Transition from conceptual to operational level for transactional leadership

Background concept	**Leadership strategy**			
Systematized concept	Transactional Leadership			Transformational leadership
Conceptual components	Contingent sanctions	Contingent pecuniary rewards	Contingent non-pecuniary rewards	Behaviors seeking to develop, share, and sustain a vision with the intend to facilitate that employees transcend their own self-interest and achieve organization goals
Conceptual definitions	Leader uses negatively valued initiatives towards employees dependent on their specific performance or effort with the intend to facilitate that employees have self-interest in achieving organization goals	Leader uses positively valued initiatives (consisting of or equivalent to money) towards employees, depending on their specific performance or effort with the intend to facilitate that employees have self-interest in achieving organization goals	Leader uses positively valued initiatives (not consisting of or equivalent to money) towards employees, depending on their specific performance or effort with the intend to facilitate that employees have self-interest in achieving organization goals	The leader develop a vision that reflects the core organizational goals, seeks to share the vision with the employees and makes an effort to sustain the employees attention to the goals with the intend to facilitate that employees transcend their own self-interest and achieve organization goals
Operational level (indicators)	Contingent sanctions (set of questionnaire items) combined with an item measuring intend	Contingent economic rewards (set of questionnaire items) combined with an item measuring intend	Contingent non-economic recognition (set of questionnaire items) combined with an item measuring intend	Visionary leadership (set of questionnaire items) combined with an item measuring intend

Note: Inspired by Frankfort-Nachmias & Nachmias 1992, page 34 & Adcock & Collier 2001

2003).

Transactional leadership

Transactional leadership entails the use of contingent rewards and sanctions to make individual employees pursue their own self-interest in a way that is beneficial to the organization. Transactional leadership rests on the assumption that appropriate incentives (obtaining rewards or avoiding sanctions) may align the self-interest of individual employees with the interest of the organization. Core to this logic is that incentives are conditional. Whether employees are given a reward or sanction should relate directly to their specific performance or effort. Otherwise, the transactions in transactional leadership (rewards and sanctions) cannot be expected to make employees act in the desired way. As House (1998) has pointed out, a transaction may consist of an exchange of pecuniary or near-pecuniary rewards (e.g. bonuses), non-pecuniary rewards (e.g. praise) and sanctions for a certain pre-defined effort. Transactional leadership therefore entails the use of three types of performance/effort-contingent consequences: Tangible rewards, non-tangible rewards and sanctions. Tangible rewards can be pecuniary (e.g. bonus pay) or near-pecuniary (e.g. perks). Non-tangible rewards (e.g. praise) are also non-pecuniary, but these rewards still have a potential effort-inducing effect if valued by employees. The last type of contingent consequence is sanctions. Transactional leaders can sanction errors and negative deviances from standards of effort and performance.

The application of these three types of contingent consequences requires transactional leaders to monitor employees' effort and/or performance. Contingent pecuniary and non-pecuniary rewards and sanctions can be applied in both public and private organizations, but pecuniary rewards may be a less common phenomenon in the public sector. This is supported by research finding, that financial incentives are used more seldom in the public sector. However, this does not suggest that the total level of transactional leadership is necessarily lower in public organizations than in private organizations. We argue that transactional leadership should be seen as a formative construct where the use of pecuniary and non-pecuniary rewards and sanctions jointly determines the conceptual and empirical meaning of transactional leadership. Together, these three dimensions form (i.e. cause changes in) the underlying construct. This means that it is not necessary for the dimensions to co-vary (actually, the dimensions can be seen as alternative transaction types, that is, different ways to perform transactional leadership), while it alters the conceptual domain of transactional leadership if a dimension is dropped (Jarvis et al., 2003).

Where transformational leaders seek to make employees strive to achieve organizational goals because of the organizational goal in itself, transactional leaders seek to make the employee strive to achieve organizational goals by changing the incentive structure of doing so. The project thus defines transactional leadership strategies as "*the use of contingent rewards and sanctions with the intend to facilitate that employees have self-interest in achieving organization goals*"

Combining transformational and transactional leadership strategies

Originally, transformational and transactional leadership strategies were posited as contrasts (Burns 1978). However, as suggested by later theory, the leadership strategies do not necessarily conflict (Bass, 1990; Waldman et al. 1990; Rainey, 2009), but should be used in combination in order to achieve exceptional performance (Trottier et al., 2008). In accordance with crowding theory, it can be argued that the positive disciplining effect of transactional leadership strategies depends on the perception of the strategy as either commanding or supportive (Frey 1997; Frey & Jegen 2001; Weibel et al. 2010, Andersen & Pallesen 2008; Jacobsen & Andersen 2011, Georgellis et al. 2011) and that transformational leadership strategies plays a key role in shaping this perception (Egger-Peitler et al. 2007; Gabris & Ihrke 2000). As such, transformational behavior reinforces the positive effect of contingent reward behaviours and lead to greater levels of subordinate effort and performance (Waldman et al., 1990). The existing few studies of the combined effect of the leadership strategies (Rowold 2011; Hargis et al. 2011; O'Shea et al. 2009; Bass et al. 2003) also suggest that combined transactional/transformational leadership leads to even higher performance than any of the leadership strategies separately.

Leadership: According to whom?

Transformational and transactional leadership are enacted by the leaders but are typically measured as the perception of employees. This is the case for studies of the leadership strategies in general (e.g. Hater & Bass, 1988; Avolio & Bass, 1999; Antonakis et al, 2003; Bass et al, 2003; Cole et al., 2009; Wang & Rode, 2010;), for studies focusing on the public sector specific (e.g. Park & Rainey 2008; Vandernebeele 2008; Trottier et al., 2008; Wright & Pandey; 2010; Wright et al., 2012; Moynihan et al., 2012) and for experiments investigating the training effect of the leadership strategies (Barling et al., 1996; Kelloway et al., 2000; Dvir et al., 2002; Parry & Sinha, 2005; Hassan et al., 2010). We argue that it is important to pay attention to whose perception is used to measure leadership strategies, because previous research has shown that multiple factors affect how a person rates himself or another target individual. Ratings are, for example, influenced by cognitive processes (e.g. how one observe behavior, organize the information and form a judgment), characteristics (e.g. ability, personality and believes) and motivation of the person evaluating another as well as contextual factors (such as tools and opportunities to observe and recall ratees' job performance) (Fleenor et al., 2010). Consequently, "ratings provided by others should not necessarily be considered as the "true score"" of leader effectiveness" (Atwater & Yammarino, 1997; Fleenor et al., 2010). However, because self-enhancement bias is common when individuals rate themselves, only measuring the leadership strategies by the perception of the leader in question is not sufficient (e.g. Podsakoff & Organ, 1986; Yammarino & Atwater 1997; Atwater et al., 1998; Atwater et al., 2005; Fleenor et al., 2010). For example, males, older individuals, individuals with less education, individuals in higher positions and individuals with high self-esteem tend to over-rate their leadership, abilities, and effectiveness relative to other raters, while intelligence and meta-cognitive ability are associated with more agreement between self- and others' ratings (Fleenor et al., 2010). In fact, research on self-other agreement (SOA) have shown that the (dis)agreement between leader perception and employee perception is an important variable in itself, because *both* the magnitude of the ratings *and* the direction of lack of agreement (i.e., self-greater than other vs. self-less than other) matters for leadership effectiveness (Atwater et al., 1998; Fleenor et al., 2010). This is consistence with findings of the few studies that measures transformational and transactional leadership strategies as both perceived by the leader in question and by the leaders employees' (Bass & Yammarino, 1991; Atwater & Yammarino, 1992; Sosik, 2001). These studies find discrepancy between leaders' and employees' perception of the leadership behavior. Performance seems to correlate higher with leaders most in agreement with their employees (Bass & Yammerino, 1991; Atwater & Yammarino, 1992), yet in one case leaders perceiving lower enactment of their leadership strategies compared to the perception of the employees outperformes leaders perceiving higher or in agreement enactment compared of the perception of the employees (Sosik, 2001).

Furthermore, the importance of self-ratings relative to other ratings differs with culture. In Europe, other ratings are the predominant influence in relation to performance and self-other agreement play an insignificant role, while in the United States self-other agreement is seen as an important factor (Atwater et al., 2005).

The LEAP project analyzes both leader perception and employee perception for several reasons. First, leaders are in the best position to report on their overall behavior with all subordinates (Johnson et a., 2012). Second, both self-ratings and other-ratings entail accurate components (Dunette, 1993; Fleenor, 2010; Johnson et al., 2012). Third, the SOA literature argument that the discrepancy is an important variable in itself and that there is uncertainty as to what perception is the relative most important factor for performance. As highlighted by the SOA literature, the different perceptions are not just a question of measuring behavior in different ways; in contrast, the different perceptions can be seen as separate variables (Atwater et al., 1998; Atwater et al., 2005).

Another potential problem is that existing studies only measure the leadership strategies as a general assessment of the enacted behavior and not the real-time experience in a given situation. Because overall assessments are separated from the real-time experiences (on the spot), assessments rests on the ability of the perceiver to remember all that is experienced in regard to the assessed behavior. Such assessment entails a retrospective bias (Shiffman et al., 1997). This is problematic, because studies have shown that the brain *selectively* encodes what is to be remembered and *selectively* retrieves what is available in memory (Stone & Broderick, 2007). In addition, selection is not random and retrieval is influenced by the current context. Bad events, are more easily retrieved when one is in a negative mood, intense experiences and those that occur nearer the time of reporting will have an especially strong influence on recall, and periods without the event in question will be neglected (Stone & Broderick, 2007). Moreover, people overestimate the frequency of rare behaviors and underestimate the frequency of frequent behaviors (Scwarts & Oyserman, 2001). When assessing an overall leadership strategy, such retrospective bias is likely to influence both leaders and employees. Even though a leader only enacts a transformational leadership strategy on rare occasions, the overall assessment of the behavior might be overrated, especially if the behavior is near in time or was intense experienced. In contrast, frequently enacted behaviors are likely to be underrated. For employees, the retrospective bias is even more serious, because they must assess a behavior of another (the leader) which is even more poorly represented in their memory (Scwarts & Oyserman, 2001). Therefore, in contrast to the results from the SOA literature, studies on memory argue, that when assessing the overall leadership strategy, the perception of the leader is a more accurate indicator. As real time experienced, transformational leadership has been proven to affect leadership effectiveness (Johnson et al., 2012). In any case, reports on real-time experiences are to be preferred, because investigating immediate experience minimizes the need of individuals to invoke memory (Shiffman et al., 1997; Stone & Broderich, 2007).

As real-time experienced, transformational leadership strategies have been proven to affect leadership effectiveness perceived by subordinates and peers (Johnson et al., 2012). Therefore, differentiating between the overall perception and the real-time experiences is not just a matter of measuring the perception of either the leader or the employee in different ways, the overall and real-time experience are different variables that might generate different results.

Differentiating between different perceptions of transformational and transactional leadership behaviors increases complexity, but we argue that this necessary to fully understand how changes in leadership strategies affect performance. Table 1 illustrates the different perception of leadership strategies.

Table 1. Differentiated understandings of transformational and transactional leadership strategies

	General or real time experience	
Actor of perception (leader or employee)	Overall leader perception	On the spot leader perception
	Overall employee perception	On the spot employee perception

Research design: Studying leadership strategies and performance

This section first explains why the LEAP project tests leadership strategies in five different sectors, differentiating between both public and private organizations, between welfare service provision and financial operating and between organizations that have just experienced organizational change, who are experiencing organizational change, and stabile organizations free of organizational change. This is followed by a discussion of the reasons for applying a field experiment.

Leadership in different sectors

The LEAP project distinguishes between public and private organizations because originally, transformational leadership strategies and transactional leadership strategies were expected to differ in these types of organizations. Public organizations were thought to rely more on bureaucratic control mechanisms than private organizations (Bass & Riggio, 2006; Wright & Pandey, 2010), thereby supporting the transactional rational and hindering the effectiveness of transformational leadership strategies (Bass, 1985; Wright & Pandey, 2010). However, these results are unsupported in recent studies of public sector leadership (Trottier et al., 2008; Park & Rainey, 2010; Wright & Pandey, 2010). In contrasts, it is argued that bureaucratic characteristics in the public sector have little, if any, adverse effect on the prevalence or practice of transformational leadership (Wright & Pandey, 2010). In fact, transformational leadership might be *particularly* effective in public organizations, as leaders can appeal to the service and community-oriented nature of the organizational vision (Paarlberg & Lavigna, 2010; Wright & Pandey, 2010). This project intend to contribute to the public/private debate by simultaneously investigating the effect of the same leadership training of both transactional and transformational leadership strategies in private as well as public sectors.

We differentiate between financial operations and welfare provisions, because not all public organizations are able to draw heavily on the welfare service and community-oriented vision because they are just not welfare providers, whereas some private organizations are. While tax organizations and bank branches are focused on finances and have very similar employees and tasks (Jensen 2004: 113), they differ in public or private ownership. For welfare provision, we focus on education of children of all ages, and the ownership variation between public and private schools, public and private high schools and public and private daycare centers.

We include all of the three welfare provision sectors (Daycare, schools and high schools), because they differ in regard to organizational changes. As noted by Bass (1990), a specific leadership strategy is not always superior in all situations, but should be considered in connection to context stability. Problems, rapid changes, and uncertainties in organizations call for transformational leaders who strive to make employees share in organizational goals (Bass, 1990). In such organizations "fostering transformational leadership through policies of recruitment, selection, promotion, training, and development is likely to pay off in the health, well-being, and effective performance of the organization" (Ibid., p. 31). Likewise, transactional strategies are optimally applied when organizations experience stability, because in these situations "things are likely to move along quite well with managers who simply promise and deliver rewards to employees for carrying out assignments" (ibid.). These suggestions are supported empirically in a recent study investigating how transformational and transactional leadership strategies influences employees evaluation of organizational change (Holten & Brenner, forthcoming). Thus, including the high school sector (have experienced organizational change just before treatment), the school sector (will be experiencing organizational change during treatment) and the daycare sector (stable sector) allow us to compare how transformational and transactional leadership strategies relate to performance under different change setting.

All in all, including five sectors with variations on three dimensions, especially respond to the call in the public administration literature for more knowledge as to how leadership strategies differ in different settings. An overview of the included sectors and how they vary are presented in table 2 and table 3.

Table 2. Included sectors.

	Private organizations	**Public organizations**
Finance operators	Banks	Tax sections
Welfare providers	Private high schools Private schools Private day care	Public high School Public schools Public day care

Table 3. Organizational change variation between welfare providers

Organizational change	
Have just experienced	High schools
Will experience	Schools
Stable	Day care

A field experiment

We use a field experiment to address the literature's two key challenges: Endogeneity and common source bias. Endogeneity is a very relevant problem, because leadership strategy will often be correlated with the error term, since the dependent variable (performance) often has an effect on leadership strategy or unobserved variables are correlated with both dependent and independent variable. Wright & Pandey (2010) therefore argue that future research should establish the causal sequence by using experimental designs. Only few experiments have investigated the effect of transformational and transactional leadership of leaders in the public sector and have only few public leaders included (Parry & Sinha, 2005, for example include 28 public sector leaders). Inspired by existing studies and a call in the literature for more knowledge of the causal effect of transformational and transactional leadership, we have chosen to experimentally induce different leadership strategies by giving different leadership training to real public and private leaders. Our key challenges therefore relate to selection of participants and content and strength of the treatments. Self-selection of participants in a field experiment is unavoidable, and our control group therefore also consists of leaders who have self-selected into the project. In other words, the public leaders will voluntarily select to be part of the project and then have an equal chance to have treatments which the literature unambiguously considers to be advantageous. All leaders in the included sectors receive a pre-treatment survey, which presents the opportunity to be part of the experiment, explicating that this means that they have 75% chance of receiving one year leadership training, corresponding to an FMOL course. FMOL is one of the two Danish Master of Public Governance educations, and the students can get credit for 5 ECTS points for participating if they (after the treatment period) hand in a paper which is evaluated according to the normal FMOL criteria. Leaders, who have started an FMOL education before they receive the pre-survey, are not offered the opportunity to participate in the experiment. We should not have a problem with participation; if only half of the leaders accept our invitation to participate, there are more than enough tax sections, secondary schools and bank branches to ensure that we can recruit 120 leaders from each of these types of organization, and there are enough schools and day-care centers to make sure that we can recruit 180 of each type (120 public and 60 private).

There will be seven teams with 25-26 participants for each treatment group. To control for potential teacher effects, one teacher will teach four teams in the combined treatment and four teams in the transactional treatment. A second teacher will teach three teams in the combined treatment and four teams in the transformational treatment. The remaining three transactional teams will be taught by a third teacher and the remaining three transformational teams will be taught by a final and fourth teacher. All teaching materials will be developed by all four researchers and will not vary between teams within a given treatment group.

We do not expect serious drop-out problems, because the treatments correspond to very popular (and expensive) elements on the existing FMOL education. We will, however, register turnout at each session. Leaders are required to commit themselves to follow only this leadership training in the given year, but we still control for other relevant activities in the treatment period in the post-survey.

Existing studies using training to induce variation in leadership strategy

The literature suggests that leadership can be taught (Doh, 2003) and that systematic leadership training can affect leadership strategy (e.g. Barling et al., Dvir et al., 2002). Only five studies that we know of report measures on the effect of training of leaders in the relevant type of leadership (Barling et al., 1996; Kelloway et al., 2000; Dvir et al., 2002; Parry & Sinha, 2005; Hassan et al., 2010). These studies all investigate the effect of transformational training and report significant increase in the leadership strategy (Barling et al., 1996; Kelloway et al., 2000; Parry & Sinha, 2005; Hassan et al., 2010) or significant effect on performance through the enhancement of transformational strategies (Dvir et al., 2002). Transformational training is also proven to significant affect self-reported employee variables such as employee commitment (Barling et al., 1996) follower development (Dvir et al., 2002), satisfaction with leadership (Parry & Sinha, 2005; Hassan et al., 2010) extra follower effort (Parry & Sinha, 2005) and objective performance measures (Kelloway et al., 2000; Dvir et al., 2002). All of the studies employ an experimental (Barling et al., 1996; Kelloway et al., 2000; Dvir et al., 2002; Hassan et al., 2010) or quasi-experimental design (Parry & Sinha). Only one study reports on the variation between different organizational settings by including leaders from both public and private organizations (Parry & Sinha, 2005). The literature on transformational training thus indicates that at least this leadership strategy can be taught. Our project contributes to this literature, but is also able to compare the trainability of the leadership strategy to the trainability of other leadership strategies. As such, it is a key priority to ensure that the treatments are strong enough to enable us to contribute to the literature regardless of what our results show. An overview of the existing studies can be seen in table 4.

Table 4 – overview of existing studies reporting measures on transformational training of leaders

Study	Leadership strategy training	Country and sector	Design and number of participants in training	Lenght of treatment	Measure of leadership strategy	Findings
Barling et al., 1996	Transformational leadership	Canada Bank branch managers	Experiment N = 20 Randomly assigned in to Training (9) Control group (11)	1 day group session and four individual booster sessions on a monthly basis	5 subordinates rating each leader 2 weeks before and 5 months after training	Training significantly affects transformational leadership strategy, employee commitment and two objective performance measures
Kelloway et al., 2000	Transformational leadership	Canada Department managers in Provincial health care corporation	Experiment N = 40 Randomly assigned to Training (10) Counseling (10) Training and counseling (12) Control group (8)	1 day workshop training and/or 1 hour counseling with author	180 subordinates rating the leaders before and 6 month after the intervention	Training, counseling and combination significantly affects transformational leadership strategy, but combination does not generate more of the strategy that either training or counseling alone
Dvir et al., 2002	Transformational leadership	Israel Military leaders	Experiment N = 54 Randomly assigned in to: Training (32) Control (22)	Three day workshop	90 "direct" followers and 724 "indirect" followers rating the leader before and after training	Transformational leadership – enhanced by training - significantly affects followers development and objective performance measures
Parry & Sinha, 2005	Transformational leadership	Australia Public and private sector midlevel managers	Quasi-Experiment N = 50 Public (28) Private (22) No control group	Three month program consistent of four days of training; Two days intervention, three months application at work, two days intervention	500 raters before and three month after the initial two day training	Training significantly affects transformational leadership strategy, decrease passive leadership behavior, increases satisfaction with leadership and extra effort of followers.
Hassan et al., 2010	Transformational leadership	Country not reported Managers of private healthcare company	Experiment N = 24 Training (12) Control group (12)	Four sessions. Session 1: three days, remaining session length not reported	3 subordinates rating each leader 10 days prior and 90 days after the training intervention	Training significantly affects employee satisfaction with trained leader

Of the existing studies, Parry and Sinha (2005) have the strongest treatment with a three month program consistent of four days of intervention; two days before and after a three month application period at the work place. Dvir et al. (2002) have a three-day leadership workshop, while Barling et al. (1996) and Kelloway et al. (2000) both have a one day workshop, four follow up sessions (Barling et al. (1996) and/or 1 hour counselling session (Kelloway et al) respectively. Hassan et al. (2010) reports four sessions but no total training time.

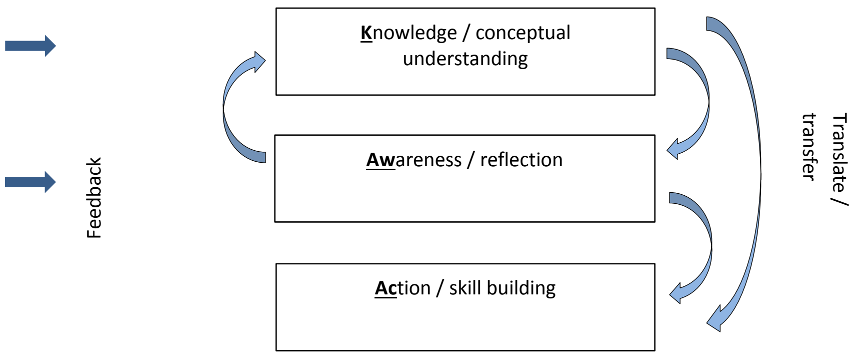
Our treatments

Our treatments all have a one year duration period and consist of 28 sessions of leadership training headed by a researcher with extensive teaching experience combined with a 600 pages curriculum and coursework between meetings. The training corresponds to 1 month full-time work for the leaders. The training is done in teams consisting of 25-26 leaders in the same geographical area to allow active participation from the leaders. Where the existing studies include no more than 54 leaders (32 for treatment and 22 for control) (Dvir et al., 2002) with no more than 50 leaders receiving training (all of the included leaders, no control group) (Parry & Sinha, 2005), our study includes 720 leaders divided equally between transformational treatment, transactional treatment, combined transactional and transformational treatment and a control group (180 leaders in each group). We aim at making our treatment stronger than the existing treatments and it has more statistical power (given the high number of participants).

The four sessions are parallel for the three leadership treatments (transformational, transactional and combined) except that the leaders will learn the tools to do the task as specifies by the relevant leadership type. We establish networks of five leaders in each network, one from each sector, so that the leaders can reflect on their challenges compared to leaders of very different organizations. Between the sessions, the leaders will work specifically with implementing the leadership strategies in their own organizations, supported by the course teacher and the other participants (especially participant in their own network).

During the first session, the leaders will develop their skills to formulate specific goals for their organizations (high school, school, day care center etc.) in the context of the broader public sector (ministries, municipalities, boards). During the second session, they will learn to make the employees want to achieve these goals either by communicating and sharing (transformational) or by establishing conditional rewards and sanctions which make it in the employees' self-interest to obtain the goal (transactional). In the last treatment group, the leaders will learn how to combine these ways to make the employees attain the goals. During the third session, the leaders will learn to maintain the vision/the use of incentives and sanctions. This is very much a question of credibility (both personal and institutional). It is important that the vision in transformational leadership does not only become window dressing, and that employees with leaders following the transactional treatment will feel confident that they get the reward (avoid the sanction) if (and only if) they behave/perform as specifies by the reward-and-sanction system. The fourth and last session focuses on changing organizational goals. The question is here what the leaders should do when the overall goals change, making a change in the vision/reward and sanction system necessary. Throughout the sessions, each leader will work on an action plan which will receive feedback several times from the teacher and from the network participants. The networks will work in a structured way to give peer feedback and create vicarious learning. The focal point of the networks will be the individual action plans. Networks will also support continuous learning and time-on-task. This will support the feedback learning processes (from awareness to increased knowledge) and translation/transfer process (by participants gaining knowledge of peers' problems/challenges/ways of doing things/experiences). Participant will thereby increase both their awareness of other ways/their own way and their potential actions/skills and integrate this to their action plans. Finally, the leaders will also receive leadership stimuli during the two tests with the ESM APP. It can both be seen as a tool to stimulate leadership development and a tool to measure leadership in a specific situation (on the spot). Figure XX illustrate the interplay between different cognitive stages in the learning process.

Figure 2



The strength of our treatment is increased by the fact that it is done by researchers who strongly believe in the treatments and have extensive teaching experience. This double role of the researchers is not problematic, because we use objective performance data (which the researchers can only affect through the leadership training), and because all participants are taught by researchers who are specialized in the leadership training they are responsible for. Still, a field experiment always presents multiple ethical dilemmas such as how much the participants should know about the treatments, and we will draw upon the experience from the medical scientific committee system to help solve these dilemma. Specifically concerning the information to the participants, we plan to inform them fully about the concrete elements in their training, while we will not tell them about our theoretical hypotheses. To insure that none of the participants will be worse off by the experiment, we insure that all parts of the leadership interventions have been used before on leadership courses with satisfactory results in terms of exam scores and student ratings.

Measures

Performance can be defined as objectively measurable achievement of the objectives formulated by elected politicians in public organizations and by owners in private organizations. Performance can be objectively measured in the five types of organizations that we have chosen. Apart from endogeneity, the other key problem in relevant literature is common source bias. Leaders tend to respond to surveys in ways that reflect favorably on themselves in terms of organizational performance and adoption of current managerial practices, leading to spurious results (Meier & O'Toole 2010a & b). Our experimental design helps avoid this, because the investigated variation in leadership strategy is experimentally induced. We plan to use multiple performance measures to increase the robustness of our results. Examples are grades and pass rates for secondary schools, proportion of correct tax assessments and collection of arrears for tax sections, and revenue and profit for bank branches. Performance and absenteeism are measured with register data before and after the treatment.

The overall perception of the leadership strategies are measures by questionnaires to both the leader and the employees before and after the treatments. Based on an extensive literature review, we propose a revised measurement instrument for the transformational and transactional leadership strategies. To measure leader behavior, we include questions asking about the use of specific contingent pecuniary and non-pecuniary reward and sanction systems (transactional leadership) and about how they seek to develop, share and sustain a vision (transformational leadership). We also ask questions about the intend behind these specific behaviors, capturing whether the leaders perform the actions in order to facilitate that employees transcend their own self-interest and achieve organization goals (transformational leadership) and in order to facilitate that employees have self-interest in achieving organization goals (transactional leadership). The dimensions follow the logic shown in figure 1. Items can be seen in table 5 and table 6 in the appendix.

The real-time experienced perception of the leadership strategies are measured using *Experience Sampling Method (ESM)*. ESM is a diary based method, suitable for gathering information about behavior when it happens. Data is gathered on multiple occasions from the same person while in his or hers natural context (Stone & Broderick, 2007) – in our case the work place. The method is originally developed for clinical practices (Shiffman & Stone, 1998), but have proven applicable within the field of work- and organizational psychology in general (Bakker & Daniels, 2013) and for studies of leadership in specific (Johnson et al., 2012; Nielsen & Cleal, 2010). We apply ESM by providing the leaders with a special developed mobile phone APP. The App entails an alarm whit short questions to the respondents about e.g. the situations they are in, the actions that they are doing, or the perception of (for leaders) their own or (for employees) others performance. The project intend to use a signal contingent sampling method (Christensen et al., 2003), where respondents will answer questions at random times during the workweek. Respondents answer the questions via the App for 2 x 5 workdays (which means two periods of data gathering), because this allows for sufficient variation of the types of situations, actions and perceptions, that we intend to investigate. Data will be analyzed via structural equation modeling and time-series analyses.

Concluding remarks

The LEAP project aims at establishing a causal chain from leadership training to leadership strategy to organizational performance for different types of private and public organizations. To contribute to do that, this paper has discussed how transformational and transactional leadership strategies can be conceptualized and operationalized in a way which does not confound the leadership strategies with their effects. We also discuss how our field experiment with leadership training interventions can provide exogenous variation in leadership strategy and thus enable us to analyze the relationship between leadership and performance without endogeneity and common source bias problems. We include schools, daycare, high schools, tax sections and bank branches (720 organizations in total) to have variation in the types of organizations on three dimensions: (1) Public versus private organizations, (2) organizations providing welfare service provision versus organizations providing financial operations and (3) stable organizations/organizations experiencing organizational change/organizations just having experienced organizational change. We also discuss the important issue of whom to ask about the leadership strategies (leaders and/or employees) and how to ask (about general leadership or about leadership in a specific situation). We know that our research design is complex, but our main argument is that this is necessary to answer the research question adequately. We hope that by presenting the potential challenges at this early time, we will be able to get comments which will allow us to contribute more to the discipline. We also hope that the paper's description of key elements of the LEAP project will stimulate cooperation. We are very willing to work on these issues together with researchers from other countries. Right now, we are recruiting the leaders for the experiment, and we have seen a very high level of interest. This strengthens our faith in the feasibility of the research design, which has not – at least in this scale – been tried before. Comments are always welcome, but they are especially welcome right now for the issues discussed in this paper.

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Appendix

Table 5

	Transformational leadership behavior – As a leader I…	
1	Concretize a clear vision for the [ORGANIZATION TYPES] future	Modified from Moynihan et al., 2012
2	Communicate my vision of the [ORGANIZATION TYPES] future	Modified from Podsakoff et al.,1996
3	Make a continuous effort to generate enthusiasm for a the [ORGANIZATION TYPES] vision	Modified from Podsakoff et al., 1996
4	Have a clear sense of where I believe our [ORGANIZATION TYPE] should be in 5 years	Modified from Moynihan et al., 2012
5	Seek to make employees accept common goals for the [ORGANIZATION TYPE]	Modified from MacKenzie et al., 2001
6	Strive to get the [ORGANIZATION TYPE] to work together in the direction of the vision	Modified from Podsakoff et al., 1996
7	Strive to clarify for the employees how they can contribute to achieve the [ORGANIZATION TYPES] goals	Own.
	Transformational leadership intend – As a leader I…	
1	Seek to make it a goal in itself for the employees to work towards achieving the [ORGANIZATION TYPES] goals	Own

Note: In the questionnaire [ORGANIZATION TYPES] is replaced by the specific sector organization e.g. "school" for the school-sector. The above questions are questions from the leader-questionnaire. The questions are slightly adjusted for the employees e.g. "My leader…. Communicates his/her vision"

Table 6

	Transactional leadership behavior	
	Contingent pecuniary rewards – As a leader I…	
1	Reward the employees' performance, when they live up to my requirements.	Modified from Jacobsen & Andersen, 2013
2	Reward the employees' dependent on how well they perform their jobs.	Jacobsen & Andersen, 2013
3	Point out what employees will receive if they do what is required.	Bass et al., 2003
4	Let employees' effort determine received rewards.	Modified from Rainey, 2009
	Contingent non-pecuniary rewards – As a leader I…	
1	Give individual employees positive feedback when they perform well	Modified from House, 1998
2	Actively show my appreciation of employees who do their jobs better than expected.	Modified from House, 1998
3	I generally do not acknowledge individual employees' even though they perform as required(R)	Modified from House, 1998
4	Personally compliment employees when they do outstanding work.	Modified from House, 1998
	Contingent sanctions – As a leader I…	
1	Give negative consequences to the employees if they perform worse than their colleagues	Own
2	Make sure that it has consequences for the employees, if they do not consistently perform as required.	Modified from Jacobsen & Andersen, 2013
3	Take steps to deal with poor performer who do not improve	Modified from Trottier et al., 2008
4	Give negative consequences to my employees if they do not perform as I require	Own
	Transactional leadership intend – As a leader I…	
	Seek to make sure that it has consequences for individual employees whether they work towards achieving the [ORGANIZATION TYPES] goals	Own

Note: The above questions are questions from the leader-questionnaire. The questions are slightly adjusted for the employees e.g. "My leader…. Rewards the employees' performance, when they live up to the leaders requirements".