

Articles

# Unveiling the Impact of Leadership Interplay on Organizational Commitment

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Keywords: Leadership, Organizational Commitment, Transactional Leadership, Transformational Leadership

<https://doi.org/10.52372/jps38402>

Vol. 38, Issue 4, 2023

Effective leadership is integral to an organization's success, as it shapes employee attitudes and behaviors toward achieving goals and fosters a culture aligned with the organizational vision. Transactional and transformational leadership are two prominent styles that have been extensively studied, with transformational leadership often perceived as more desirable. This study aims to bridge gaps in existing research by investigating the interplay between these leadership styles and their impact on organizational outcomes, particularly employee commitment, using data from the 2020 Public Employee Perception Survey conducted by the Korea Institute of Public Administration (KIPA). The study contributes to the literature on leadership's impact on organizational outcomes and sheds light on the mechanisms through which leadership styles influence employee commitment, providing a comprehensive understanding of their collective influence on organizational success.

## INTRODUCTION

Effective leadership plays a crucial role in the success of an organization as it significantly impacts the attitudes and behaviors of employees towards achieving organizational goals (Jensen et al., 2019; Jung & Choi, 2011; Moynihan et al., 2012; Nam & Lee, 2021; Van Wart, 2013; Wright et al., 2012). More importantly, leadership plays a key role in shaping organizational culture as leaders shape a culture that supports the organizational vision, facilitates strategic progress, and nurtures an environment where effective leadership can thrive (Avolio & Bass, 1995). In this regard, researchers and practitioners have extensively studied different leadership styles. Two prominent approaches that emerged from these studies are transactional and transformational leadership (Jensen et al., 2019; Jia et al., 2013). In public administration literature, transactional and transformational leadership have been traditionally treated as distinct domains, with transformational leadership often regarded as more desirable compared to transactional leadership. Numerous empirical studies support this notion by showcasing how transformational leadership can yield positive organizational outcomes, including enhanced public service motivation, job satisfaction, job performance, and organizational commitment, among others (Braun et al., 2013; Caillier, 2014; Hameduddin & Engbers, 2022; Schwarz et al., 2020; Top et al., 2015; Wright et al., 2012).

While leadership can be exhibited by individuals at any level within the organizational hierarchy, it is especially crucial for those holding managerial positions in public organizations or government agencies to exercise effective leadership. As managers, their responsibilities extend beyond ensuring the smooth functioning of their respective divisions or departments. They must also engage in strategic planning, motivate employees, and provide opportunities for their professional development to reach their fullest potential. As noted by Avolio and Bass (1995), organizations tend to have cultures that encompass both transactional and transformational leadership styles. It may be ideal to make a shift towards fostering more transformational qualities in organizational cultures, while still retaining a foundation of effective transactional qualities. That is, it is important to note that leadership effects can occur simultaneously, and effective leaders may exercise both transactional and transformational leadership in a complementary manner to achieve better outcomes. Despite this, previous studies have often taken a fragmented approach in studying transformational and transactional leadership styles (Breevaart & Zacher, 2019; Jensen et al., 2019; Jia et al., 2013). They primarily focus solely on examining the individual effects of the two leadership styles on employee outcomes or exploring interactions between either transformational or transactional leadership with other situational factors (Jensen et al., 2019; Jia et al., 2013). However, there is a notable gap in the existing em-

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empirical studies, as there has been limited research examining the interplay between these two leadership styles and their impact on organizational outcomes. In fact, limited research has delved into the nuanced interactions among distinct dimensions of leadership styles, with only a handful of recent studies making significant progress in this area. Within the domain of public administration literature, the scarcity of such investigations underscores a significant void in prior scholarly work. For instance, Nielsen and colleagues' studies in 2017 examined the impacts of transformational leadership and contingent material rewards, contributing valuable insights to this underexplored area. In contrast, the business literature has witnessed more extensive exploration in this regard. For example, Breevaart and Zacher (2019) conducted a notable study examining the interaction impacts of specific dimensions of these leadership styles, with a particular focus on weekly transformational and laissez-faire leadership effects. Additionally, studies by Puni and his colleagues, as well as Cho and his colleagues (2019), have empirically explored augmentation impacts by examining the interactions between these two leadership styles. Thus, further investigation is necessary to gain a comprehensive understanding of how the combination of transactional and transformational leadership influences organizational performance.

Therefore, this study attempts to fill those gaps by exploring the possible interplay between transformational and transactional leadership styles on organizational outcomes, specifically focusing on employee commitment to their employing organization. In this regard, this study addresses the following two questions including 1) What are the influences of managers' different leadership styles on organizational commitment? and 2) what is the mechanism by which these different leadership styles exert distinct effects on organizational commitment? By doing so, this study aims to make a valuable contribution to the existing literature on the impacts of leadership on organizational outcomes. Moreover, it seeks to investigate the underlying mechanism through which different leadership styles exhibited by managers improve their employees' organizational commitment. By providing insights into this aspect, this study may offer a comprehensive understanding of how these different leadership styles collectively influence organizational outcomes.

## **THEORETICAL BACKGROUND AND HYPOTHESES**

In studying the motivational impacts of leadership, our focus lies on organizational commitment. Organizational commitment holds significance in the literature as a crucial variable for comprehending individual employees' attitudes and behaviors towards their employing organization (Meyer et al., 2002; Meyer & Herscovitch, 2001). It has been linked to producing positive organizational outcomes, including reduced turnover, increased job satisfaction, and other favorable effects (Camilleri & Van Der Heijden, 2007; Moon, 2000; Peng et al., 2020; Wasti, 2003). Organizational commitment is defined as a psychological state that binds individual employees to their employing organization and "has implications for the decision to continue or discontinue

membership in the organization" (Meyer & Allen, 1991, p. 67). Meyer and Allen (1991) proposed a three-component model of organizational commitment, which includes affective commitment indicating employees' affective orientation toward the organization, normative commitment indicating employees' sense of moral obligation to remain in the organization, and continuance commitment, which is their acknowledgment of the costs associated with leaving. Previous studies and meta-analyses have identified various antecedents of organizational commitment, encompassing demographic variables, individual differences, work experiences, group-leader relations, organizational characteristics, and more. Notably, an extensive body of research has provided empirical evidence supporting leadership style as a significant antecedent of organizational commitment (Bass & Riggio, 2006; Peng et al., 2020; Whittington et al., 2004; Yahaya & Ebrahim, 2016).

## **Revisiting the Relationship Between Transactional and Transformational Leadership Styles and Organizational Commitment**

Transformational and transactional leadership were seen as distinct and sometimes even opposing styles. Since Burns (1978) introduced the constructs of transformational and transactional leadership as a single continuum, with the former at one end and the latter at the other, prior studies have treated these two leadership styles as distinct entities and have examined their impact on organizational outcomes separately. Furthermore, in the realm of leadership research, transactional and transformational leadership styles have been extensively studied for their effects on employee commitment. However, as noted by Bass & Avolio (1993), the best leaders typically display both transformational and transactional leadership traits. Also, contemporary research has shifted this perspective, recognizing that these leadership styles can work together to enhance overall leadership effectiveness. While transactional leadership alone can be effective, the incorporation of transformational behavior can lead to exceptional performance from followers, which is referred to as the augmentation effect (Hater & Bass, 1988). The dynamics of leadership interactions extend beyond mere augmentation. There can be cases where additive impacts result from the combination of different leadership styles, brought about by the reinforcement of similar behaviors or the alignment of complementary aspects of these distinct styles. Conversely, there are instances where synergistic impacts occur, giving rise to a unique outcome that emerges from the interplay of these styles. Despite this, previous studies have often treated these styles in isolation, overlooking their potential additive, augmentative, or synergistic impacts on commitment. Thus, this study explores the intricate nature of leadership interactions and their potential impacts on organizational commitment.

## Transformational leadership and Organizational Commitment

Transformational leadership is focused on developing followers to their fullest potential and providing them with a compelling vision and a sense of mission. It is commonly described as having four components: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence refers to leaders who act as strong role models for their followers, displaying ethical and exemplary behavior while also offering a clear vision and sense of purpose. Inspirational motivation involves leaders who inspire and motivate their followers by sharing a compelling vision within the organization. Intellectual stimulation entails leaders who encourage and stimulate their followers to be creative and innovative when solving problems. Lastly, individualized consideration involves leaders who strive to create a supportive work environment where the individual needs of their followers are well-addressed (Bass, 1985; Bass & Avolio, 1993).

According to transformational leadership theory, this leadership style involves demonstrating symbolic and meaningful behaviors, particularly through idealized influence, such as exercising ethical behavior, advocating ideological values, and articulating a compelling vision. By doing so, leaders can earn the trust of their followers, which, in turn, fosters full emotional identification with the leader and their vision among the followers. Also, inspirational motivation in transformational leadership involves motivating followers to embrace the shared vision. By setting high expectations and inspiring enthusiasm, the leader fosters a sense of purpose and commitment among followers, leading to enhanced organizational commitment (Bass & Avolio, 1997). Moreover, building on social exchange theory (Cook et al., 2013; Cropanzano & Mitchell, 2005), which posits that individuals establish exchange relationships based on mutual and complementary work outcomes, and guided by reciprocal interdependence norms, it is plausible to argue that transformational leadership, characterized by inspirational and supportive behaviors, can create a positive social exchange with followers. As a result, followers are likely to reciprocate with goodwill and helpfulness towards the leader and the organization, strengthening their commitment to the organization. In a similar vein, when individuals hold a specific perception regarding the support they receive from their organization, where they witness the quality of social exchanges facilitated by transformational leaders who are attentive to their needs and supportive of their development, employees are more likely to reciprocate by contributing to positive organizational outcomes (Eisenberger et al., 1986, 1990). These outcomes may include higher job performance and increased organizational commitment (Cropanzano & Mitchell, 2005; Ngodo, 2008). In this regard, previous studies have empirically examined and produced empirical support for the positive impacts of transformational leadership on organizational commitment (Jain & Duggal, 2018; Walumbwa et al., 2005).

*H1. Transformational leadership is positively associated with an employee's organizational commitment.*

## Transactional Leadership and Organizational Commitment

On the other hand, Transactional leadership involves exchanges between leaders and followers to achieve organizational goals and drive performance by using contingent rewards and sanctions linked to individual employee behavior, efforts, and outcomes. In this leadership style, leaders provide contingent rewards or sanctions in exchange for followers meeting expectations and performance standards (Avolio et al., 1999; Bass, 1985; Bass & Avolio, 1993).

Also, path-goal and reinforcement approaches to leadership, transactional leadership theory and its related empirical evidence suggests that the way leaders administer rewards and punishments impacts employees' internal cognitive processes, which, in turn, influence their attitudes and behaviors. As noted earlier, transactional leadership employs rewards and punishments contingently; administering rewards based on employees' outcomes and punishments contingent upon undesired behavior. This behavior will positively shape an individual employee's perception of procedural or distributional justice (Ball et al., 1992), which, in turn, has a positive impact on individual attitudinal and behavioral outcomes, including commitment and performance (Cohen-Charash & Spector, 2001; Greenberg, 1990; Jensen et al., 2019). Also, transactional leadership clarifies their expectations to their followers regarding desired organizational outcomes and goal achievement to administer contingent rewards and sanctions. By doing so, transactional leadership may help reduce goal and role ambiguity that followers may experience, which, in turn, positively affects their commitment and job outcomes.

Previous empirical studies and meta-analyses have also supported this argument (P. M. Podsakoff et al., 2006). For example, Podsakoff et al. (2006) conducted both single-sampled empirical studies and meta-analytic evidence from longitudinal studies. Their findings revealed that rewards and punishment administered events are contingent upon employees' achievements, and when specific behaviors deserving leader's praise or social approval are clearly communicated, it positively affects individuals' outcomes, including organizational commitment, trust, task performance, and organizational citizenship behaviors. Also, building on the theoretical notion by Meyer and Herscovitch (2001), Walumbwa and his colleagues (2008) using a sample of 212 bank employees found that when contingent reward leader behavior is exercised, it shapes individuals' perception of procedural justice climate, which, in turn, affects organizational commitment. In a similar vein, Afshari and Gibson (2016) examined two entities, healthcare and manufacturing, and found a positive relationship between contingent reward components of transactional leadership and willing commitment. However, the mediating factors differed between the two organizations. In the manufacturing organization, the relationship was mediated by both competence and relatedness, whereas in the healthcare entity, it was solely mediated by competence. Consistent with those previous studies and theoretical notions, we state:

*H2. Transactional leadership is positively associated with an employee's organizational commitment.*

## Interplay between Transformational and Transactional Leadership

As noted above, traditionally, studies examining the relationship between leadership styles and organizational outcomes have often treated transformational and transactional leadership as distinct and located at opposite ends of a continuum. However, an alternative perspective is offered by the full-range leadership theory, as proposed by Bass and his colleagues (2003). Bass and his colleagues (2003) suggest a full-range leadership theory that encompasses a wide spectrum of leadership behaviors, ranging from the most passive and inactive to the most active and transformational. The theory conceptualizes leadership behavior in the following three styles: transformational, transactional, or inactive. Instead of viewing transformational and transactional leadership as mutually exclusive, the full-range theory introduces the possibility of an augmentation effect, where these two leadership styles may complement and reinforce each other (Bass et al., 1987, 2003; Bass & Avolio, 1993; Hater & Bass, 1988; Jia et al., 2013; Oberfield, 2014). In this regard, previous studies have suggested the possibility of augmentation effects, where transactional leadership serves as a basis, and the addition of transformational leadership enhances effectiveness (Bass & Avolio, 1993; Hater & Bass, 1988). For example, in the study by Bass and his colleagues (2003), they chose the U.S. Army platoon in a military context, facing rapid turnover of leadership and operating under challenging and uncertain conditions. The findings suggest that transformational leadership augments transactional leadership, particularly when the transactional items are based on explicit contracts or quid pro quo exchanges. This implies that when leaders exhibit transformational behaviors, it strengthens the impact of their transactional practices on employee outcomes.

However, it is important to consider alternative cases where transactional leadership may be effective on its own, or when both transactional and transformational leadership styles work simultaneously or in a mutually complementary manner. In fact, despite the agreement that managing public organizations may require managers to exercise both transactional and transformational leadership, the degree of each style may vary depending on the circumstances. In certain situations, managers may need to emphasize more transactional leadership, even when facing fluctuations in the external environment. On the other hand, in cases where their employing unit or division already functions well, managers may need to focus more on transformational leadership to foster growth and development. In essence, while the augmentation hypothesis primarily assumes the synergistic effect of combining both styles, it is essential to explore various scenarios to understand the full range of their impacts, particularly in the context of public organizations (Oberfield, 2014; Vecchio et al., 2008). However, only a few recent studies have been conducted, and more empirical research is needed to fully examine these interactions. For example, in the con-

text of Danish leaders in five different areas, including public and private non-profit schools (lower and upper secondary), daycare centers, tax offices, and banks, Nielsen and his colleagues (2017) examined the impacts of transformational leadership alongside various types of transactional leadership simultaneously. Transactional leadership was categorized into three types, including contingent verbal rewards, contingent material rewards, and contingent sanctions. They found that among varying types of transactional leadership, it was found that transformational leadership and contingent material rewards are not compatible; rather, they appear to undermine each other. Interestingly, when combined with moderate to high levels of contingent material rewards, the positive motivational effects typically associated with transformational leadership diminish. This study provides empirical support for interaction impacts rather than previously noted augmentation or additive impacts. Thus, we argue that:

*H3. Different degrees of combination of transactional and transformational leadership styles are positively associated with organizational commitment.*

## RESEARCH DESIGN

### Data and Analytic Method

The data for this study was obtained from the 2020 Public Employee Perception Survey conducted by the Korea Institute of Public Administration (KIPA). This survey was administered from July 12, 2019, to August 11, 2020, to both central and local government employees in South Korea, employing probability-proportional-to-size sampling. The survey's content encompasses various aspects of human resource management for public officials, including work environment, organizational management, recruitment and selection, motivation, attitudes, and behaviors, among others. A total of 46 central government agencies and 17 local government entities participated, with 4,339 civil servants working in public service responding. Of these, 1,983 were from central agencies and 2,356 were from local agencies (Korea Institute of Public Administration, 2021). To examine the hypotheses, a multiple regression analysis was undertaken. Concerning the leadership interplay variable, the regression model utilized the combination where both leadership styles are at a low level (1, 1) as the reference group.

### Measurements

The dependent variable, organizational commitment, is conceptualized as follows: 1) the desire to remain a member of the organization, 2) the willingness to exert effort for the organization, 3) acceptance of organizational values, and 4) a sense of belonging to the organization (Allen & Meyer, 1990; Mowday et al., 1982; Porter et al., 1974). To measure organizational commitment, the following four survey items were used and averaged: 1) "I am willing to do any job to stay with this organization.", 2) "I am willing to exert effort for the success of the organization.", 3) "I feel a strong sense of belonging to our organization.", and

4) “The values pursued by our organization are congruent with my own values.” All items were measured on a 5-point scale (1=strongly disagree, 5=strongly agree), and Cronbach’s alpha coefficient was 0.8545. The independent variable, Leadership Synergy (or Leadership interplay) is created by combining respondents’ perceptions of transformational and transactional leadership. The original survey consisted of 10 items related to leadership styles. Among these, there were 2 items related to transactional leadership: “My supervisor clearly explains the rewards/benefits I will receive if the goals are achieved.” and “My supervisor specifically tells me what I need to do to obtain rewards/benefits based on job performance.” Additionally, three items were related to transformational leadership: “My supervisor presents a clear vision that I should aim for in the future.”, “My supervisor motivates me to work hard.”, and “My supervisor encourages me to perform tasks from a new perspective.” (Bass & Avolio, 1993; Lim et al., 2019; Park & Choi, 2022). To validate the assumption that a single leader can simultaneously exhibit distinct types of leadership, this study revamped the leadership combination scale through the following procedure: Initially, the degree of transactional and transformational leadership, as perceived by respondents concerning their superiors, was gauged by calculating the mean values of respective items. Subsequently, the magnitudes of these two leadership styles were recalibrated and classified as Low, Middle, or High, according to their respective average values. This categorization process was informed by the mean and standard deviation as benchmarks. Consequently, the diverse combinations of leadership styles led to the identification of nine distinct groupings. Following this procedure, the leadership combinations used in this study range from cases where respondents perceive their superiors to manifest low levels of both transactional and transformational leadership (1, 1), to cases where they perceive high transactional leadership and high transformational leadership (3, 3). For example, a scenario featuring low transactional leadership and high transformational leadership can be represented as (1, 3).

Concerning control variables, various individual and organizational factors that have been demonstrated to influence the organizational commitment of members were incorporated. These factors encompass respondents’ current position, length of tenure, education level, gender, and organizational affiliation type (central government/local government), as well as factors like perceived workload and work environment levels (Kim & Oh, 2018; Lim et al., 2019). For the position variable, current positions were reclassified as follows: positions of Grade 4 or above were categorized as (1), Grade 5 as (2), Grades 6 to 7 as (3), and Grades 8 to 9 as (4).<sup>1</sup> The length of tenure was restructured into six categories: 5 years or fewer as (1), 6 to 10 years as (2), 11 to 15 years as (3), 16 to 20 years as (4), 21 to 25

years as (5), and 26 years or more as (6). Education level was transformed into a dummy variable and categorized into five groups: high school graduate (1), associate’s degree (2), bachelor’s degree (3), master’s degree (4), and doctoral degree (5). Gender was assigned (1) for male and (2) for female. Organizational type was categorized as central government (1) and local government (2) based on respondents’ affiliations. In the case of perceived workload, it was assessed using a single-item question: “How do you perceive your workload in general?” on a 5-point Likert scale. The work environment was measured using a single-item question: “How satisfied are you with the work environment (noise, lighting, temperature control, physical surroundings)?” also using a 5-point scale.

## RESULTS

The results of the descriptive statistics analysis and correlation analysis are presented in [Table 1](#) and [Table 2](#). In the correlation analysis results, shaded areas indicate significance at a level of  $p < 0.05$ . Concerning the descriptive statistics, the average organizational commitment score was 3.27, signifying a relatively high level of perceived organizational commitment among survey respondents. As for the leadership variable, which consists of combinations of two leadership styles, examining average values lacks significance. Instead of providing average values, the proportional composition of each leadership combination among all respondents is presented to enhance comprehension. Moreover, in the correlation analysis results, the absolute values of correlation coefficients ranged from 0.01 to 0.45, with no variables demonstrating notably high levels of concern (above 0.45).

The objective of this study is to explore how the interplay of leadership styles affects the organizational commitment of public officials within the South Korean public service. The study involves reanalyzing perception data related to the extent of transactional and transformational leadership perceived by public employees, resulting in the identification of nine distinct leadership combination groups. To assess the hypotheses, a multiple regression analysis was executed. [Model 1] comprises a model containing solely control variables, while [Model 2] pertains to the primary model encompassing the leadership combination in the analysis. The Variance Inflation Factor (VIF) levels across the models range from a minimum of 1.03 to a maximum of 5.34, with Mean VIF values of 2.07 (Model 1) and 1.80 (Model 2), respectively. These values suggest that multicollinearity is not a major concern within the models. Furthermore, the results of Harman’s one-factor test (P. M. Podsakoff et al., 2003) revealed a total of four factors with eigenvalues exceeding 1. The largest factor, explaining 21.21% of the total variance, did not exhibit significant concerns about common method bias.

<sup>1</sup> In the Korean civil service system, there are nine grades, with grade 1 being the highest (equivalent to assistant minister level), and grade 9 being the lowest. The individuals categorized as ‘grade 4 and above’ are director-level employees.

**Table 1. descriptive statistics and correlation results**

	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9
1 OC	3.27	0.73	1	5	1								
2 Leadership	5.73	2.90	1	9	0.39*	1							
3 Rank	2.79	0.72	1	4	-0.14*	-0.07*	1						
4 Tenure	3.26	1.78	1	6	0.27*	0.07*	-0.45*	1					
5 Education	3.06	0.67	1	5	0.04*	-0.02	-0.27*	-0.01	1				
6 Gender	1.43	0.50	1	2	-0.15*	-0.12*	0.16*	-0.05*	-0.05*	1			
7 Local	1.50	0.50	1	2	0.03*	-0.03	0.23*	0.12*	-0.12*	-0.01	1		
8 Workload	3.66	0.72	1	5	-0.05*	-0.07*	0.03	-0.05*	0.06*	-0.09*	0.01	1	
9 WE	3.22	0.91	1	5	0.23*	0.21*	-0.03	0.08*	-0.02	-0.08*	0.02	-0.11*	1

Obs=4,339, \* p<0.05

OC= Organizational Commitment; WE=Working Environment

**Table 2. Descriptive statistics of leadership group**

Leadership group	1	2	3	4	5	6	7	8	9
Combination	(1,1)	(1,2)	(1,3)	(2,1)	(2,2)	(2,3)	(3,1)	(3,2)	(3,3)
Freq.	697	167	135	236	874	571	54	154	1,451
Percent	16.06	3.85	3.11	5.44	20.14	13.16	1.24	3.55	33.44

(L1, L2) = (level of Transactional leadership, level of Transformational leadership)

Findings suggest that in relation to [Model 1], which includes only the control variables, it was found that respondents' tenure, education, gender, and working environment significantly influence organizational commitment. Specifically, it was observed that as respondents' tenure increases ( $\beta=0.236$ ,  $p<0.001$ ) and satisfaction with the working environment improves ( $\beta=0.197$ ,  $p<0.001$ ), organizational commitment also increases. Furthermore, compared to those with a high school degree, individuals with a doctoral degree or higher ( $\beta=0.036$ ,  $p<0.05$ ) and males ( $\beta=-0.121$ ,  $p<0.001$ ) exhibited a positive impact on organizational commitment. Although there are differences in coefficient values ( $\beta$ ), these results for the control variables were similarly observed in [Model 2], which included the leadership combination variable to examine leadership synergy impacts. In the case of [Model 2], it was found that as tenure increases ( $\beta=0.225$ ,  $p<0.001$ ) and satisfaction with the working environment improves ( $\beta=0.126$ ,  $p<0.001$ ), organizational commitment also increases. Additionally, compared to high school graduates, individuals with a master's degree ( $\beta=0.053$ ,  $p<0.05$ ) or a doctoral degree or higher ( $\beta=0.047$ ,  $p<0.01$ ), as well as males ( $\beta=-0.083$ ,  $p<0.001$ ), exhibited a significant positive relationship with organizational commitment.

Regarding the influence of each leadership combination on organizational commitment, in comparison to the case where both transactional leadership and transformational leadership are low (1,1), when using this scenario as the reference group, it was observed that all other eight leadership combinations (group 2 to group 8) exhibit a significant positive correlation with organizational commitment. This confirms that in this context, the hypotheses 1 and 2 of this study were partially supported.

The Leadership Synergy (or Leadership interplay) effects of transactional leadership and transformational leadership, which this study sought to confirm, can be gauged by the standardized regression coefficients ( $\beta$ ) of each leadership style combination, indicating the magnitude of their influence. In other words, the standardized regression coefficients for each combination represent the relative strength of their impact on organizational commitment when compared to the reference group (1,1). This can be presented in rank order, as shown in [Table 4] below. The analysis results revealed that compared to the combination of low transactional leadership and low transformational leadership, when both leadership types are at a high level, they exhibit the strongest relative correlation with organizational commitment. Additionally, strong correlations were observed in the following combinations, listed in order: (moderate transactional leadership, high transforma-

tional leadership), (moderate transactional leadership, moderate transformational leadership), (high transactional leadership, moderate transformational leadership), (low transactional leadership, high transformational leadership), (high transactional leadership, low transformational leadership), (low transactional leadership, moderate transformational leadership), and (moderate transactional leadership, low transformational leadership).

Based on the analysis results, it appears that organizational members experience the most significant positive impact on organizational commitment when their managers simultaneously exhibit the characteristics of both high transactional leadership and high transformational leadership types, as opposed to situations where this is not the case. Furthermore, the analysis results reaffirm that both transactional leadership and transformational leadership individually exert positive influences on organizational commitment. Of particular interest is that when at the same level, a higher level of transformational leadership type has a more positive impact on organizational commitment compared to the transactional leadership type. In cases where transactional leadership is high and transformational leadership is at a moderate level, the magnitude of influence ( $\beta$  value) was smaller than when both leadership types were at a moderate level, indicating the importance of balance between the two leadership styles. Lastly, when examining the lower rankings, if either one of the leadership types is at a low level, it can be inferred that neither type has a significantly positive impact on organizational commitment, compared to situations where both types are at a low level. Based on these findings, this study confirmed hypotheses 1, 2, and 3.

## DISCUSSION AND CONCLUSION

The primary purpose of the current study was to examine how the interplay of two different leadership styles, previously considered distinct but capable of being exercised simultaneously by leaders, generates additive, augmentative, or synergistic impacts on organizational outcomes. Our focus was on employees' organizational outcomes, seeking to elucidate how varying combinations of these leadership styles distinctly predict public employees' commitment to their employing organization. As mentioned earlier, while numerous previous studies have explored the singular and independent impacts of each leadership style on organizational outcomes, less attention has been given to their potential interplay within an organizational context. Notably, while the augmentation impacts have long been addressed in the literature, recent



**Table 3. Regression results**

	Model 1		Model 2	
Leadership style (Reference: 1, 1)				
2			0.033*	(0.055)
3			0.050***	(0.060)
4			0.031*	(0.048)
5			0.151***	(0.033)
6			0.202***	(0.036)
7			0.040**	(0.090)
8			0.088***	(0.057)
9			0.452***	(0.030)
Rank	0.009	(0.018)	0.024	(0.017)
Tenure	0.236***	(0.007)	0.225***	(0.007)
Education (Reference: high school)				
Community college	-0.013	(0.069)	-0.003	(0.064)
University	-0.031	(0.054)	-0.020	(0.050)
Master	0.397	(0.060)	0.053*	(0.056)
PhD	0.036*	(0.090)	0.047**	(0.083)
Gender	-0.121***	(0.021)	-0.083***	(0.020)
Local	0.012	(0.022)	0.024	(0.021)
Workload	-0.027	(0.015)	-0.011	(0.014)
Working environment	0.197***	(0.011)	0.126***	(0.011)
Constant	2.614***	(0.108)	2.273***	(0.103)
N of Observations	4,339		4,339	
F	67.85***		82.04***	
R-squared	0.1355		0.2547	
Adj R-squared	0.1335		0.2516	

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001

**Table 4. Standardized coefficient effect comparison**

β size	1	2	3	4	5	6	7	8
Combination	(3,3)	(2,3)	(2,2)	(3,2)	(1,3)	(3,1)	(1,2)	(2,1)

(L1, L2) = (level of Transactional leadership, level of Transformational leadership)

empirical studies have started to investigate how the combination of two leadership styles can lead to augmentation effects through the reinforcement of similar behaviors or the alignment of complementary aspects of these two distinct styles. For example, Nielsen and colleagues' studies in 2017 examined the impacts of transformational leadership and contingent material rewards. However, the potential additive or synergistic impacts have not been thoroughly addressed in theory or empirically examined.

To address these gaps, this study presents nine different combinations of the two leadership styles on a spectrum building on the full range leadership model. These range from scenarios where respondents perceive their superiors to exhibit low levels of both transactional and transformational leadership (1, 1), to situations where they perceive high levels of both transactional and transformational lead-

ership (3, 3). We explore the varying impacts of these combinations on organizational commitment, while controlling for demographic and work attributes that contribute to variances in organizational commitment. By creating these distinct leadership combinations and incorporating them into a regression model to predict organizational commitment, we scrutinized synergistic impacts rather than mere augmentation effects. Our exploration of the combined effects of both leadership styles suggests a potential synergistic interaction, implying that the simultaneous presence of transactional and transformational leadership may yield a collective positive impact on organizational commitment that surpasses their individual effects. The findings indicate that specific levels of transactional and transformational leadership styles, particularly the combination of high transactional leadership and high transformational



leadership, as well as the combination of moderate transactional leadership and low transformational leadership, displayed a synergistic effect on the organizational commitment of public employees. Moreover, it was identified that, when at the same level, transformational leadership showcases more favorable aspects. Intriguingly, when both are at a moderate level, it is notable that the b-values are higher than in scenarios where there is high transactional leadership and moderate transformational leadership. This underscores the effectiveness of these particular amalgamations of leadership styles in bolstering employee commitment, emphasizing the significance of judiciously selecting and applying leadership practices.

These results have important implications for leadership theory. Previous studies have presented a comprehensive spectrum of leadership theories. However, through our examination of the interplay between these two leadership styles and their impact on organizational commitment, we not only offer empirical substantiation for the full range leadership theory but also extend its scope. By introducing the concept of synergistic impacts, we broaden the theoretical landscape, contributing to a more intricate understanding of leadership dynamics. In particular, by operationalizing leadership with consideration of varying degrees of exercise for different leadership styles, this degree-based operationalization allows for a nuanced analysis of how leaders might balance and integrate these two leadership styles in real-world settings. Additionally, by examining the intricate nature of different combinations of leadership on organizational commitment, we believe we are responding to the call for a “fuller full range” (Antonakis & House, 2014, p. 746). Second, this study also responds to the call for more research on transactional leadership, as highlighted by Podsakoff et al. (2010). They pointed out the prevalent focus on transformational leadership and the subsequent neglect of research into transactional leadership. Our findings show that when transformational leadership interacts with transactional leadership, it can produce desirable outcomes. Moreover, our study makes a noteworthy contribution to the broader field of leadership research by incorporating cases from non-Western countries, specifically by examining the experiences of Korean government employees.

There are several important limitations to the current study. First, the use of cross-sectional data limits inferences about causal processes. Additionally, due to the nature of using secondary data, it was challenging to de-

termine how long the respondents had worked with their respective leaders. This duration could potentially influence their perceptions of their leader’s leadership styles and its impact on their attitudinal and behavioral outcomes. Therefore, future studies would benefit from collecting and conducting longitudinal data analysis. In particular, the duration of working with the respective leader should be considered. Furthermore, to provide evidence of generalizability, future studies are needed to ascertain whether the associations identified in this study stem from distinctive characteristics inherent to public organizations in South Korea.

Additionally, due to the nature of using secondary data, there are limitations in using the refined measure of both leadership styles. Future studies would benefit by employing more refined measures of these two leadership styles to ensure their validity. Moreover, when examining the interaction of different leadership styles, it is important to acknowledge that there are many other possible leadership styles that could potentially interact with these two, transformational and transactional leadership. For instance, ethical leadership or servant leadership, which might be displayed by those in managerial positions, could be considered to further enrich the understanding of leadership dynamics and their impact on organizational outcomes. Moreover, all data reported in this study came from a single source, raising concerns about potential common method bias. However, the reported results from Harman’s one-factor test suggest that common source bias is not a major concern in our empirical model. Despite these limitations, we believe this study enriches our understanding of the potential interplay—specifically, the synergistic impacts—between transformational and transactional leadership styles and their relationship to organizational commitment.

## Funding

This study was supported by the Research Program funded by the SeoulTech (Seoul National University of Science and Technology).

Submitted: August 10, 2023 KST, Accepted: October 30, 2023 KST



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## References

- Afshari, L., & Gibson, P. (2016). How to increase organizational commitment through transactional leadership. *Leadership & Organization Development Journal*, 37(4), 507–519. <https://doi.org/10.1108/loj-08-2014-0148>
- Allen, N. J., & Meyer, J. P. (1990). Organizational socialization tactics: A longitudinal analysis of links to newcomer's commitment and role orientation. *Academy of Management Journal*, 33(4), 847–858. <http://doi.org/10.2307/256294>
- Antonakis, J., & House, R. J. (2014). Instrumental leadership: Measurement and extension of transformational–transactional leadership theory. *The Leadership Quarterly*, 25(4), 746–771. <https://doi.org/10.1016/j.leaqua.2014.04.005>
- Avolio, B. J., & Bass, B. M. (1995). Individual consideration viewed at multiple levels of analysis: A multi-level framework for examining the diffusion of transformational leadership. *The Leadership Quarterly*, 6(2), 199–218. [https://doi.org/10.1016/1048-9843\(95\)90035-7](https://doi.org/10.1016/1048-9843(95)90035-7)
- Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership. *Journal of Occupational and Organizational Psychology*, 72(4), 441–462. <https://doi.org/10.1348/096317999166789>
- Ball, G. A., Trevino, L. K., & Sims, H. P., Jr. (1992). Understanding subordinate reactions to punishment incidents: Perspectives from justice and social affect. *The Leadership Quarterly*, 3(4), 307–333. [https://doi.org/10.1016/1048-9843\(92\)90019-c](https://doi.org/10.1016/1048-9843(92)90019-c)
- Bass, B. M. (1985). Leadership: Good, better, best. *Organizational Dynamics*, 13(3), 26–40. [https://doi.org/10.1016/0090-2616\(85\)90028-2](https://doi.org/10.1016/0090-2616(85)90028-2)
- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public Administration Quarterly*, 112–121.
- Bass, B. M., & Avolio, B. J. (1997). Concepts of leadership. *Leadership: Understanding the Dynamics of Power and Influence in Organizations*, 323, 285.
- Bass, B. M., Avolio, B. J., & Goodheim, L. (1987). Biography and the assessment of transformational leadership at the world-class level. *Journal of Management*, 13(1), 7–19. <https://doi.org/10.1177/014920638701300102>
- Bass, B. M., Avolio, B. J., Jung, D. I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88(2), 207–218. <http://doi.org/10.1037/0021-9010.88.2.207>
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership*. Erlbaum. <https://doi.org/10.4324/9781410617095>
- Braun, S., Peus, C., Weisweiler, S., & Frey, D. (2013). Transformational leadership, job satisfaction, and team performance: A multilevel mediation model of trust. *The Leadership Quarterly*, 24(1), 270–283. <http://doi.org/10.1016/j.leaqua.2012.11.006>
- Breevaart, K., & Zacher, H. (2019). Main and interactive effects of weekly transformational and laissez-faire leadership on followers' trust in the leader and leader effectiveness. *Journal of Occupational and Organizational Psychology*, 92(2), 384–409. <https://doi.org/10.1111/joop.12253>
- Burns, J. M. (1978). *Leadership*. Harper & Row.
- Caillier, J. G. (2014). Toward a better understanding of the relationship between transformational leadership, public service motivation, mission valence, and employee performance: A preliminary study. *Public Personnel Management*, 43(2), 218–239. <https://doi.org/10.1177/0091026014528478>
- Camilleri, E., & Van Der Heijden, B. I. J. M. (2007). Organizational commitment, public service motivation, and performance within the public sector. *Public Performance & Management Review*, 31(2), 241–274. <https://doi.org/10.2753/pmr1530-9576310205>
- Cho, Y., Shin, M., Billing, T. K., & Bhagat, R. S. (2019). Transformational leadership, transactional leadership, and affective organizational commitment: a closer look at their relationships in two distinct national contexts. *Asian Business & Management*, 18(3), 187–210. <https://doi.org/10.1057/s41291-019-00059-1>
- Cohen-Charash, Y., & Spector, P. E. (2001). The role of justice in organizations: A meta-analysis. *Organizational Behavior and Human Decision Processes*, 86(2), 278–321. <https://doi.org/10.1006/obhd.2001.2958>
- Cook, K. S., Cheshire, C., Rice, E. R. W., & Nakagawa, S. (2013). Social exchange theory. *Handbook of Social Psychology*, 61–88. [https://doi.org/10.1007/978-94-007-6772-0\\_3](https://doi.org/10.1007/978-94-007-6772-0_3)
- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874–900. <https://doi.org/10.1177/0149206305279602>
- Eisenberger, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. *Journal of Applied Psychology*, 75(1), 51. <https://doi.org/10.1037/0021-9010.75.1.51>
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500. <https://doi.org/10.1037/0021-9010.71.3.500>
- Greenberg, J. (1990). Organizational justice: Yesterday, today, and tomorrow. *Journal of Management*, 16(2), 399–432. <https://doi.org/10.1177/014920639001600208>
- Hameduddin, T., & Engbers, T. (2022). Leadership and public service motivation: a systematic synthesis. *International Public Management Journal*, 25(1), 86–119. <https://doi.org/10.1080/10967494.2021.1884150>

- Hater, J. J., & Bass, B. M. (1988). Superiors' evaluations and subordinates' perceptions of transformational and transactional leadership. *Journal of Applied Psychology, 73*(4), 695. <https://doi.org/10.1037/0021-9010.73.4.695>
- Jain, P., & Duggal, T. (2018). Transformational leadership, organizational commitment, emotional intelligence and job autonomy: Empirical analysis on the moderating and mediating variables. *Management Research Review, 41*(9), 1033–1046. <https://doi.org/10.1108/mrr-01-2018-0029>
- Jensen, U. T., Andersen, L. B., Bro, L. L., Bøllingtoft, A., Eriksen, T. L. M., Holten, A.-L., Jacobsen, C. B., Ladenburg, J., Nielsen, P. A., Salomonsen, H. H., Westergård-Nielsen, N., & Würtz, A. (2019). Conceptualizing and measuring transformational and transactional leadership. *Administration & Society, 51*(1), 3–33. <https://doi.org/10.1177/0095399716667157>
- Jia, P., Mahdiraji, H. A., Govindan, K., & Meidutė, I. (2013). Leadership selection in an unlimited three-echelon supply chain. *Journal of Business Economics and Management, 14*(3), 616–637. <https://doi.org/10.3846/16111699.2012.761648>
- Jung, K. H., & Choi, J. W. (2011). Institutional leadership and perceived performance: Evidence from the Korean Minister Survey. *Journal of Policy Studies, 26*(2), 45–75.
- Kim, T., & Oh, M. (2018). The Influence of Workplace Flexibility on Organizational Commitment: Focusing on the Domains of Work and Life. *Administrative Studies, 56*(4), 189–220.
- Korea Institute of Public Administration. (2021). *2021 Public Service Life Survey*. Government Data Research Center, Korea Institute of Public Administration.
- Lim, J. Y., Moon, K. K., & Cho, H. J. (2019). The Effects of Public Service Motivation on Innovative Behavior and Moderation of Transformational and Transactional Leadership. *Korean Society and Public Administration, 30*(2), 31–53. <https://doi.org/10.5386/5/kspa.2019.08.30.2.31>
- Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review, 1*(1), 61–89. [https://doi.org/10.1016/1053-4822\(91\)90011-z](https://doi.org/10.1016/1053-4822(91)90011-z)
- Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: Toward a general model. *Human Resource Management Review, 11*(3), 299–326. [https://doi.org/10.1016/s1053-4822\(00\)00053-x](https://doi.org/10.1016/s1053-4822(00)00053-x)
- Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior, 61*(1), 20–52. <https://doi.org/10.1006/jvbe.2001.1842>
- Moon, M. J. (2000). Organizational commitment revisited in new public management: Motivation, organizational culture, sector, and managerial level. *Public Performance & Management Review, 24*(2), 177–194. <https://doi.org/10.2307/3381267>
- Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). *Employee-organization linkages: the psychology of commitment, absenteeism and turnover*. Academic Press. <https://doi.org/10.1016/b978-0-12-509370-5.50005-8>
- Moynihan, D. P., Pandey, S. K., & Wright, B. E. (2012). Setting the table: How transformational leadership fosters performance information use. *Journal of Public Administration Research and Theory, 22*(1), 143–164. <https://doi.org/10.1093/jopart/mur024>
- Nam, K., & Lee, S. Y. (2021). Presidential leadership qualities and their Influence on trust in government. *Journal of Policy Studies, 36*(3), 37–54.
- Ngodo, O. E. (2008). Procedural justice and trust: The link in the transformational leadership–organizational outcomes relationship. *International Journal of Leadership Studies, 4*(1), 82–100.
- Nielsen, P. A., Boye, S., Holten, A. L., Jacobsen, C. B., & Andersen, L. B. (2017). *Are transformational and transactional types of leadership compatible? A panel study of work motivation*. IRSPM-conference, Corvinus University, Budapest.
- Oberfield, Z. W. (2014). Public management in time: A longitudinal examination of the full range of leadership theory. *Journal of Public Administration Research and Theory, 24*(2), 407–429. <https://doi.org/10.1093/jopart/mus060>
- Park, J. S., & Choi, H. Y. (2022). Transactional contingent reward, transformational leadership, organizational culture, and individual and organizational performance: Mediating effects of bureaucratic and unbureaucratic cultures. *Korean Public Administration Review, 56*(2), 297–330. <https://doi.org/10.18333/kpar.56.2.297>
- Peng, S., Liao, Y., & Sun, R. (2020). The influence of transformational leadership on employees' affective organizational commitment in public and nonprofit organizations: A moderated mediation model. *Public Personnel Management, 49*(1), 29–56. <https://doi.org/10.1177/0091026019835233>
- Podsakoff, N. P., Podsakoff, P. M., & Kuskova, V. V. (2010). Dispelling misconceptions and providing guidelines for leader reward and punishment behavior. *Business Horizons, 53*(3), 291–303. <https://doi.org/10.1016/j.bushor.2010.01.003>
- Podsakoff, P. M., Bommer, W. H., Podsakoff, N. P., & MacKenzie, S. B. (2006). Relationships between leader reward and punishment behavior and subordinate attitudes, perceptions, and behaviors: A meta-analytic review of existing and new research. *Organizational Behavior and Human Decision Processes, 99*(2), 113–142. <https://doi.org/10.1016/j.obhdp.2005.09.002>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879. <https://doi.org/10.1037/0021-9010.88.5.879>

- Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology, 59*(5), 603. <https://doi.org/10.1037/h0037335>
- Schwarz, G., Eva, N., & Newman, A. (2020). Can public leadership increase public service motivation and job performance? *Public Administration Review, 80*(4), 543–554. <https://doi.org/10.1111/puar.13182>
- Top, M., Akdere, M., & Tarcan, M. (2015). Examining transformational leadership, job satisfaction, organizational commitment and organizational trust in Turkish hospitals: public servants versus private sector employees. *The International Journal of Human Resource Management, 26*(9), 1259–1282. <https://doi.org/10.1080/09585192.2014.939987>
- Van Wart, M. (2013). Lessons from leadership theory and the contemporary challenges of leaders. *Public Administration Review, 73*(4), 553–565. <https://doi.org/10.1111/puar.12069>
- Vecchio, R. P., Justin, J. E., & Pearce, C. L. (2008). The utility of transactional and transformational leadership for predicting performance and satisfaction within a path-goal theory framework. *Journal of Occupational and Organizational Psychology, 81*(1), 71–82. <https://doi.org/10.1348/096317907x202482>
- Walumbwa, F. O., Avolio, B. J., & Zhu, W. (2008). How transformational leadership weaves its influence on individual job performance: The role of identification and efficacy beliefs. *Personnel Psychology, 61*(4), 793–825. <https://doi.org/10.1111/j.1744-6570.2008.00>
- Walumbwa, F. O., Orwa, B., Wang, P., & Lawler, J. J. (2005). Transformational leadership, organizational commitment, and job satisfaction: A comparative study of Kenyan and U.S. financial firms. *Human Resource Development Quarterly, 16*(2), 235–256. <http://doi.org/10.1002/hrdq.1135>
- Wasti, S. A. (2003). Organizational commitment, turnover intentions and the influence of cultural values. *Journal of Occupational and Organizational Psychology, 76*(3), 303–321. <https://doi.org/10.1348/096317903769647193>
- Whittington, J. L., Goodwin, V. L., & Murray, B. (2004). Transformational leadership, goal difficulty, and job design: Independent and interactive effects on employee outcomes. *The Leadership Quarterly, 15*(5), 593–606. <https://doi.org/10.1016/j.leaqua.2004.07.001>
- Wright, B. E., Moynihan, D. P., & Pandey, S. K. (2012). Pulling the levers: Transformational leadership, public service motivation, and mission valence. *Public Administration Review, 72*(2), 206–215. <https://doi.org/10.1111/j.1540-6210.2011.02496.x>
- Yahaya, R., & Ebrahim, F. (2016). Leadership styles and organizational commitment: literature review. *Journal of Management Development, 35*(2), 190–216. <https://doi.org/10.1108/jmd-01-2015-0004>

## Appendix

**Table 3. Regression results**

	Model A1		Model A2	
Transformational leadership			0.242***	(0.179)
Transactional leadership			0.180***	(0.180)
Rank	0.009	(0.018)	0.019	(0.016)
Tenure	0.236***	(0.007)	0.219***	(0.006)
Education (Reference: high school)				
Community college	-0.013	(0.069)	-0.005	(0.063)
University	-0.031	(0.054)	-0.023	(0.049)
Master	0.040	(0.600)	0.054*	(0.055)
PhD	0.036*	(0.090)	0.052***	(0.082)
Gender	-0.121***	(0.021)	-0.078+	(0.020)
Local	0.012	(0.022)	0.027*	(0.020)
Workload	-0.027+	(0.014)	-0.003	(0.013)
Working environment	0.197***	(0.011)	0.107***	(0.011)
Constant	2.614***	(0.108)	1.529***	(0.105)
N of Observations	4,339		4,339	
F	67.85***		141.24***	
R-squared	0.1355		0.2815	
Adj R-squared	0.1355		0.2795	

Note: \*p<.05, \*\*p<.01, \*\*\*p<.001