

**SUPPORT FOR INNOVATION AND INDIVIDUAL INNOVATION
READINESS AS MEDIATORS BETWEEN TRANSFORMATIONAL
LEADERSHIP AND INNOVATIVE WORK BEHAVIOR: AN EMPIRICAL
STUDY WITHIN SINGAPOREAN SERVICE ORGANIZATIONS**

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ABSTRACT

Changes in the world's economic landscape is forcing companies, especially those in the service industry, to stay relevant by introducing innovative service options and solutions. Employee innovative behavior has become an important condition for these businesses to succeed in this dynamic environment. While transformational leadership is often seen to induce innovative work behavior in employees, little is known about the psychological mechanisms through which this effect occurs. Our research conceptualizes the mediating effect of perceived support for innovation and individual innovation readiness in a series: between transformational leadership and actual innovative work behavior. We use the responses of 428 employees from six service organizations in Singapore to test our three-path mediation model. As hypothesized, the data supported the three-path mediation model. The results reveal a partial mediating role of support for innovation and a fully mediating role of individual innovation readiness. This finding is useful for designing and implementing effective human resource and organizational development interventions, with the objective of facilitating innovation in workforce within the service-type contexts.

Keywords: Innovative work behavior; transformational leadership; perceived support for innovation; individual innovation readiness

INTRODUCTION

Many organizations in the service sector are being compelled to innovate their services in order to meet the fast-changing demands of customers. Service innovation is even becoming an essential element for gaining competitive advantage. Regardless of the type of industry, innovation is now vital for the sustainable survival of organizations (Drucker, 2015). In this regard, much significance is given to the innovative behavior of the employees as they can even be agents who initiate it (Shipton et al., 2006). Innovation by employees is one of the best ways to foster innovation and organizational success (Mytelka & Smith, 2002; Van de Ven, 1986). The role of managers as leaders in motivating employees has gained the attention of researchers and practitioners. Researchers are increasingly studying ways to motivate individual employees to display creative behaviors, e.g., through transformational leadership (Piccolo & Colquitt, 2006; Podsakoff et al., 2003; Wang et al., 2014). However, how transformational leaders affect innovative work behaviors has not been adequately examined (Gong et al., 2009; Jung et al., 2003). While researchers have studied the relation between individual perceptions of transformational leadership and employees' creativity, which is a first stage of innovation (Hyypia & Parjanen, 2013; Malloch, 2014), minimal attention has been given to the effect of transformational leadership on actual innovative work behavior, along with the understanding of the psychological mechanisms and processes of employees to translate leaders' behaviors into followers' action. The present study aims to understand the role of follower-felt support for innovation and their readiness for innovation in the relationship between transformational leadership and the degree of innovative work behavior.

Employee's innovative work behavior refers to the development and initiation of novel and useful ideas and implementing these ideas into new and improved products,

services or ways of doing things (Baer, 2012; Kanter, 1988; Van de Ven, 1986). This is in line with previous research which differentiated between idea generation phases and idea implementation phases; these two phases were then combined into one construct named innovative work behavior (Baer, 2012; Baer & Frese, 2002; Glisson, 2015; Scott & Bruce, 1994; Somech & Drach-Zahavy, 2013).

Clearly, there is a need to understand the mechanisms and processes through which transformational leaders induce innovative work behavior in their subordinates (Bass, 1999; Latham, 2014). One particularly promising psychological mechanism is employee's intrinsic motivation to innovate, or: individual readiness for innovation. We define it as an individual's cognitive and affective response to what needs to change, including whether he/she is capable of making the change and is confident that the change will benefit the organization and its employees (Holt et al., 2007, Choi & Ruona, 2011).

Another individual mechanism was found to impact the effect of transformational leadership on a follower's behavior: his/her perception of the amount of support for innovation. On the one hand, employee's contributions to innovation may be beneficial by enhancing a better fit between work conditions, personal needs and competences, an improved collaboration and communication with colleagues, and higher levels of job satisfaction and well-being (Janssen, 2000). On the other hand, employees who participate in innovation processes may also run the risk of conflict and resistance by colleagues or supervisors who want to prevent changes of established work patterns and norms (Janssen, 2005).

Thus, this study intends to make two contributions to the theory of leadership and innovation. First, we examine the impact of transformational leadership on employees' innovative work behavior and their readiness for innovative work behaviors. Second, we investigate whether the relationship between transformational leadership and employees'

innovative work behavior is mediated by employee's readiness and perceived support for innovation (Gumusluoglu & Ilsev, 2009; Jung & Chow, 2008; Reuvers et al., 2008). Hence, our main research question is: To what extent do employees' perceived support for innovation and individual innovation readiness mediate the relation between transformational leadership and innovative work behavior?

A transformational leadership model that includes these effects on innovative work behavior was developed and subsequently tested through a survey distributed among public and private service employees in Singapore. Although transformational leadership and innovation are relatively popular research topics, this study uniquely addresses not only the call from Denti and Hemlin (2012) and Kark, Van Dijk, and Vashdi (2018) to empirically test the mediating role of follower's motivation for innovation in the relationship between transformational leadership and innovative work behavior but also the mediating role of support for innovation. There is clear practical relevance for this study's aims. The fast and sometimes disruptive changes in the business environment demand innovative work practices in order to stay competitive, especially in Singapore where the study was carried out. This is particularly the case for organizations in the service industry because service employees are often in close contact with service customers. They are, therefore, uniquely positioned to know a lot about the changing demands or wishes of their clientele

THEORETICAL BACKGROUND AND HYPOTHESES

Transformational Leadership and Innovative Work Behavior

Innovative work behavior relates to how individuals can facilitate the initiation and intentional introduction of new and useful ideas, processes, products or procedures (Leong & Rasli, 2014). In other words, innovative work behavior is the intentional creation, introduction and application of new ideas within a work role, group or

organization, in order to benefit performance (Janssen, 2000). The introduction of new and useful perspectives at work is often a multi-stage process. Typically, innovative work behavior has four stages: opportunity exploration, idea generation, championing, and implementation (De Jong & Den Hartog, 2010). The first stage includes such behaviors as looking for ways to improve current products, services or processes, or trying to think about current work processes, products or services in alternative ways (Ford, 1996): Idea generation for new or existing products, improvements, or solutions (Amabile, 1988). Championing includes behaviors related to finding support and building coalitions, such as persuading and influencing other employees as well as pushing and negotiating (Howell, 2005). Finally, implementation means doing what is needed to transform ideas into reality; it includes such behaviors as developing new products or work processes, and testing and modifying them (De Jong & Hartog, 2010).

Innovative work behavior is known to be affected by organizational commitment, organizational innovation climate, leadership, social capital and work characteristics (Ma & Pilar, 2014). Transformational leaders influence followers and stimulate their innovative behavior by enhancing their identification with the organization and its leadership (Jung et al., 2003, 2008; Qu, Janssen, & Shi, 2015). The concept of transformational leadership has gained wide popularity among leadership researchers during the past decade (Reuvers et al., 2008; Qu, Janssen, & Shi, 2015). This is because of its qualitatively different approach to motivating followers, compared with other leadership styles (Gardner & Avolio, 1998; Howell & Avolio, 1993; Yammarino, Spangler, & Bass, 1993). Bass and Avolio (1994) characterized transformational leadership as being composed of four unique but interrelated behavioral components: inspirational motivation (articulating an appealing and/or evocative vision), intellectual

stimulation (promoting creativity and innovation), idealized influence (charismatic role modelling), and individualized consideration (coaching and mentoring).

Several aspects support the expectation that transformational leadership would enhance employee's innovative work behavior. First, by means of individual consideration, transformational leaders motivate employees to go further than their job description to achieve the desired performance (Bass, 1985; Ng, 2017) by involving the individuals' value systems and aligning them with the collective identity (Shamir, House, & Arthur, 1993). Furthermore, they highlight the follower's individual qualities, thereby emphasizing the diversity of talents and prompting innovative behavior (Jung, Chow, & Wu, 2003; Oke, Munshi, & Walumbwa, 2009). Transformational leaders are concerned with individual achievement and the development of their subordinates, for instance, via mentoring and coaching to prepare them to assume more responsibilities and ultimately to develop followers into leaders (Bass & Avolio, 1989; Yukl, 2013). This then tends to lead to new learning opportunities resulting in new knowledge relevant in, for instance, idea generation (Gumusluoglu & Ilsev, 2009) and induces or maintains employees' intrinsic motivation, enabling them to also look for novel approaches to problem solving (Zhou, 1998).

Secondly, transformational leaders serve as role models through idealized influence. They motivate employees to achieve team and/or organizational goals (Bass, 1990; Jung, Chow, & Wu, 2003). Thirdly, transformational leaders enable innovative job performance through the inspirational motivation component (Gumusluoglu & Ilsev, 2009). Specifically, they have been found to inspire and excite employees through identifying new opportunities and articulating an important vision and mission for the future (Oke, Munshi, & Walumbwa, 2009; Whittington et al., 2004). Such leader behavior enhances employees' understanding of the importance of the values associated with

desired work outcomes. Transformational leaders also have the competence to enhance employees' confidence in their own capabilities to meet high expectations that contribute to accomplishing organizational goals (Mumford, Scott, Gaddis, & Strange, 2002; Mesu, Sanders, & Van Riemsdijk, 2015). In addition, those leaders inspire and encourage employees to get involved in the generation of novel ideas and extra effort to perform beyond expectations.

Lastly, by providing intellectual stimulation, transformational leaders encourage followers to think 'out of the box' and to adopt generative and exploratory thinking processes (Pearce & Ensley, 2004). Transformational leaders stimulate their followers: to think about old problems in new ways; by encouraging them to challenge their own values, traditions, and beliefs (Hater & Bass, 1988; Bass & Avolio, 1994; Elkins & Keller, 2003; Qu et al., 2015); to re-examine the extant assumptions; to change their ways of thinking about problems. They communicate the need for change by using analogy and metaphor. These leaders characteristically increase their employees' confidence to generate alternative solutions and to implement them (Mumford et al., 2002; Bass & Avolio, 2004; Bass, 2006). Hence, prior studies provided the basis for our first hypothesis:

Hypothesis 1: Transformational leadership is positively related to employees' innovative work behaviors.

Although it is reasonable to expect managers' leadership behaviors to directly influence innovative work behavior, it is important to understand the mediating processes between employees' translation of leader behaviors into own actions (Jung & Chow, 2008; Mumford et al., 2002; Scott & Bruce, 1994). In the below, we conceptualize how two likely mediators – support for innovation and individual innovation readiness – work between transformational leadership and innovative work behavior.

Support for Innovation as a Mediator

The effect of employees' perceived support for innovation through innovative behaviors has been empirically examined (Lloréns et al., 2004; Scott & Bruce, 1994). According to Amabile et al. (1996), employees' perceptions of such support make up the psychological context of creativity which, in turn, can influence their innovative behavior. However, Mumford and Gustafson (1988, p. 37) argued that: "Even when individuals have developed the capacity for innovation, their willingness to undertake productive efforts may be conditioned by beliefs concerning the consequences of such actions in a given environment." If colleagues only emphasize reliable and efficient operations without mistakes, other employees will be discouraged from taking the initiative in their work even if they are given autonomy (Yukl, 2008). However, when employees' work climates value initiative and innovative approaches, they are more likely to take calculated risks, accept challenging assignments, and derive intrinsic enjoyment from their work.

Similarly, Scott and Bruce (1994) state that employees' perceptions of the extent to which innovation is encouraged at work is likely to influence their innovative work behavior: this includes their perception of their involvement in decision-making and the level to which organizational resources are allocated to supporting innovation. Hence, when they perceive their department is open to change and it is safe to participate, with an availability of adequate resources, they are more likely to perceive the work environment as being supportive of innovation. They then take risks and champion innovation.

The relationship between transformational leadership and innovative work behavior needs to be explored in a broader perspective, as it does not exist in isolation. Various contextual factors are also important; they may affect the way transformational

leaders spur employees to be more innovative (Reuvers et al., 2008). Prior evidence that supports innovation as an important contextual variable between transformational leadership and innovative work behavior is limited. Mumford et al. (2002), for instance, suggest that transformational leaders may influence organizational climate, mediating the relationship between transformational leadership and innovative work behavior. Jung et al. (2003) concluded that empowerment and support for innovation mediate the relationship between transformational leadership and organizational innovation. A study by De Jong (2013) found that contextual variables, like innovative work climate, moderate the relationship between leader's behavior and innovative work behavior. The current research fills a clear gap by examining the mediating role played by support for innovation in the relationship between transformational leadership and employees' innovative work behavior. This is also because previous research relating to transformational leadership and innovation was predominantly focused on the organizational level (Gumusluoglu & Ilsev, 2009; Jung et al., 2003) and was conducted mainly in Western contexts (Michaelis et al., 2010). Very few empirical studies examined the relationship between transformational leadership and innovative work behavior at the individual level in a non-Western context (Reuvers et al., 2008; Wilson-Evered et al., 2001). Therefore, the present research addresses this limitation by investigating the extent to which support for innovation affects innovative work behavior in a non-Western society (like Singapore).

Hypothesis 2: Support for innovation mediates the relationship between transformational leadership and employees' innovative work behavior.

Individual Innovation Readiness as a Mediator

Another individual-level mechanism impacting follower behavior pertains to the intrinsic motivation to innovate. According to Krause (2004), the propensity to innovate

includes an employee's perceived need for change as well as the perceived susceptibility to change. His study of 274 managers and employees found that intrinsic motivation and knowledge significantly predicted the propensity to innovate in a positive way (Krause, 2004). Similarly, after interviewing 120 R&D scientists, Amabile et al. (1996) showed that intrinsic motivation is a strong predictor of employee's innovative behavior. It is also known that an individual's overall judgement of individual change readiness is influenced by one's beliefs that change is needed, that one is capable of change, and that the change will have positive outcomes (Rafferty et al., 2013). Indeed, Choi and Ruona (2011) and Rogers (2003) stressed that individuals' attitudes towards an innovation affect their decision to implement the innovation. Thus, we define *individual innovation readiness* as an individual's cognitive response to the need for change, the capability of making the change and the confidence in its benefit to both the organization and employees (Holt et al., 2007, Choi & Ruona, 2011). Followers' innovative work behavior will occur if they judge that the work situation needs an innovative change and is liable to change (Rafferty & Simons, 2006; Holt et al., 2007).

The role of transformational leadership in formulating and modifying the support for an innovative work climate strongly impacts employees' readiness for innovation (Fernet et al., 2015). Leaders' visions and support may influence followers' stance towards innovation (Lyons et al., 2009), encourage them to challenge the status quo and think in previously unexplored ways, thereby demonstrating innovative work behavior (Yukl, 2008). Hence:

Hypothesis 3: Individual innovation readiness mediates the relationship between transformational leadership and innovative work behavior.

Since change constitutes part of the daily routine that is supported and encouraged in many organizations, it is likely that the employees' perceptions of support for

innovation will also be positively associated with their openness to changes (Brown & Osborne, 2012; Michaelis et al., 2010). Fugate et al. (2004) stressed that employees who perceive a supportive climate may be more inclined to consider change as an opportunity for growth and learning, and will therefore be less resistant to change, and will consequently be readier to innovate. Furthermore, when continuous change and development are a central part of the daily work situation, employees will be more inclined to be involved in ongoing changes. Communication about innovations and participation in innovative initiatives will then take a more central role in their daily routines. Employees in such work settings are likely to receive timely and accurate information, to have opportunities for participation, and to experience trust in those managing the change (Choi, 2011). Consequently, they will be readier for innovation. Thus:

Hypothesis 4: Individual innovation readiness mediates the relationship between support for innovation and innovative work behavior.

The hypothetical model is depicted in Figure 1.

Insert Figure 1 about here

METHODS

Singapore Context

In response to the recommendations of past studies by Dorfman et al. (2012) and Dan Hartog et al. (1999) on culture and leadership, we explored the relationship between transformational leadership and innovative work behavior in Singapore. Since its independence in 1965, the city-state of Singapore has achieved substantial economic growth and is currently a key regional trade center. The Singapore economy has strong

high-tech, service-oriented and knowledge-based sectors. It has a population of three million citizens of which more than 70% are of ethnic Chinese origin. Yet, Singapore's society is not dominated by Chinese cultural values but is rather influenced by values from both the East and the West due to the large number of multinational companies. A unique feature of Singapore is the strong involvement of the government in all aspects of society (Li, Ngin, & Teo, 2013). The economy comprises commerce, transport, communications, financial, business, community, social and personal services. The service sector contributes more than a 67% share of the GDP, plus it is the largest contributor to Singapore's GDP growth. Employee innovative behavior often enables organizations to succeed in dynamic business environments. Companies in the service sector are pressured to stay relevant through introducing unique service options and solutions. Some firms are already pushing their employees to be more innovative in their work. Singapore's Finance Minister, Heng Swee Keat, highlighted in the 2017 budget speech that companies must encourage a learning and adaptive approach, to be innovative, by trying new methods when conducting work and business. Moreover, Singapore has set aside S\$2.4 billion to deepen its service industry's capabilities over the next 4 years and to transform enterprises through innovation.

Additionally, over S\$ 100 million has been set aside for entrepreneurs to expand overseas and to build up innovation and leadership capabilities. Such funds as Productivity & Innovation Capability (PIC) and Innovation Capability Voucher (ICV), which were introduced in 2015, will continue to be allocated so as to provide companies with the opportunity for the training and development of their employees' innovation practices. Many companies are thereby excited at the opportunity to jump onto the bandwagon. Therefore, there is a need to support companies to take a systematic and combined approach to build up their employees' innovation readiness and innovative

work behavior. Studies by the Chartered Institute of Personnel & Development (CIPD) and the Human Capital & Leadership Institute (HCLI) on “Future Talent of Singapore 2030”, released in March 2017, cited a key attribute as being: “the ability to create and innovate”. Considering the importance placed on Singaporean companies to be innovative in today’s global environment, the present research examines factors directly related to facilitating employees’ innovative work behavior. We use, as an empirical base for this study, both Singaporean public agencies as well as private-sector service organizations.

Sample and procedure

We pilot tested the survey on the corporate service staff in one educational institute in Singapore ($N = 48$; 97.96% response rate). Based on factor and reliability analyses and participants’ feedback, we amended the instrument. Then, during August to December of 2017, we surveyed 679 employees from six organizations in the Singapore service sector. These organizations employed between 60 to 1,800 employees, who provided services such as education, consulting, third-party logistics, technology services and tax administration. The average response rate was 70.97% (482 responses); 54 incomplete responses were omitted. The data of the remaining respondents were analyzed ($M_{\text{age}} = 35.57$ years; 55.6% females; $M_{\text{tenure}} = 3.39$ years; $M_{\text{roletenure}} = 3.78$ years; 69.8% had at least a degree qualification). These employees performed a wide range of jobs and functions; They included customer service, front-office work, back-office work, taxation administration, education, consulting and technology design. The main researcher had been engaged as their consultant to develop innovation and leadership skills. Thus, the findings of the study were useful for the participating organizations as part of their organizational development initiatives. Note, though, that the survey was conducted prior

to the training interventions and employees' involvement in improvement/innovation projects.

The survey was administered online. Upon completion of the survey, the participants could download their own reports automatically. In addition, aggregated group results were presented to the participants during subsequent workshops. A summary of these aggregated results and preliminary recommendations were presented to HR and other senior executives of the participating organizations.

Measures

The survey comprised four validated and published scales, which were replicated in this study's exploratory factor analyses using the principle component method with varimax rotation (Fabrigar et al., 1999): After removing three items due to cross-loading, four factors accounted for 59.25% of the variance. The results showed a Kaiser-Meyer-Olkin Measure of Sampling Adequacy of .962, $\chi^2 = 13457.38$ and a p-value of 0.00 for all four variables.

Innovative work behavior consisted of nine items based on Janssen's (2000) examination of employees' individual innovation in the workplace. We used a seven-point Likert scale ranging from *never* (1) to *always* (7). An example item is: "*I search out new working methods, techniques or instruments.*" The Cronbach's alpha of this scale was .93.

Individual innovation readiness was measured by a composition of the seven-item *change efficacy* scale developed by Holt et al. (2007) and the three-item *readiness for change* scale developed by Rafferty (2013). The items were rephrased from 'change' to 'innovation'. All the items' answers were anchored on a seven-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7). After the factor analysis, three items with loadings less than 0.50 were removed. The remaining seven items loaded onto

one factor that accounted for 49.20% of the variance. An example item is: “*I feel hopeful about the innovation.*” The Cronbach’s alpha of the scale was .83.

Perceived support for innovation was measured by nine items adapted from Scott and Bruce’s (1994) perceptual measure of support for innovation climate. The answers were based on a seven-point Likert type scale from *strongly disagree* (1) to *strongly agree* (7). A sample item is “*There are adequate resources devoted to innovation in my department.*” The Cronbach’s alpha of the scale was .90.

Transformational leadership. All 20 items from the Multifactor Leadership Questionnaire Form 5X were used to measure transformational leadership (Bass & Avolio, 1997). The employees were asked to rate the frequency with which their direct supervisors displayed different behaviors, on a seven-point Likert scale ranging from *never* (1) to *always* (7). An example of the item is “*My manager talks optimistically about the future.*” The Cronbach’s alpha of this scale was .97.

Control variables. Past research has identified several demographic variables such as gender and tenure as potential influences on employee’s innovative work behavior and performance (Mumford et al., 2002; Reuvers et al., 2008). In our study, respondents’ gender and tenure were included as control variables.

Data Analysis

After analyzing and recording the missing values, we checked for inconsistencies or outliers in the datasets. The descriptive statistics and intercorrelations are listed in Table 1. Common method variance can occur in cross-sectional surveys (Podsakoff, MacKenzie, & Podsakoff, 2012; Podsakoff et al., 2003; Podsakoff & Organ, 1986). Although common method bias has been referred to as an “urban legend” (Spector, 2006), we included multiple countermeasures. Besides improving the survey clarity with a pilot-test, multiple item measures borrowed from existing research were applied (Harrison,

McLaughlin, & Coalter, 1996). Further, we guaranteed anonymity and confidentiality to the respondents (Podsakoff et al., 2012). A Harman's one-factor test was then performed in order to control whether common method bias was a problem in the data (Podsakoff & Organ, 1986) whereby all the items were included in an exploratory factor analysis. When this analysis yields only a single factor from an un-rotated factor solution, or when the first factor explains more than 50% of data variance, common method bias is likely to occur (Podsakoff & Organ, 1986). We found that one single factor explained 34.29% of the variance of all used items. Thus, we can conclude that common method bias was not a great issue (Podsakoff & Organ, 1986).

To test our hypotheses, we performed hierarchical regression analysis, supplemented with structural equation modelling (SEM) through AMOS 20.0 with Maximum Likelihood bootstrapping as well as a Sobel test of the indirect effects.

RESULTS

Correlation Analysis

The bivariate correlations (Table 1) indicate that all the independent variables were significantly related to innovative work behavior with correlations equal to or higher than $r = .46, p < .01$. It can also be seen that there was a significant, positive correlation between transformational leadership and support for innovation ($r = .62, p < .01$) as well as between transformational leadership and innovation readiness ($r = .33, p < .01$), and a positive correlation between support for innovation and innovation readiness ($r = .41, p < .01$).

Insert Table 1 about here

Hypothesis Testing

In order to test the hypotheses about the mediating effect of support on innovation and individual innovation readiness, we conducted hierarchical regression analysis. The result supported H1 that proposed a relationship between transformational leadership and innovative work behavior (Table 2, $\beta = .53$, $p < .01$).

Insert Table 2 about here

Next, we tested H2. According to Baron and Kenny (1986), mediation is supported if each of the following criteria are demonstrated: (a) The first regression equation shows that the independent variable relates to the dependent variable, (b) the second equation shows that the independent variable relates to the mediating variable, and (c) the third equation shows that the mediating variable is related to the dependent variable and the relationship of the independent variable with the dependent variable is significantly lower in magnitude in the third equation than in the second. Full mediation is supported when the independent variable does not relate to the dependent variable when the mediating variable is added to the equation.

Using the first condition, we found a significant relationship between transformational leadership and individual innovation readiness ($\beta = .32$, $p < .01$, Table 2); and between transformational leadership and innovative work behavior ($\beta = .53$, $p < .01$, Table 2). Moreover, a Sobel test indicated a significant indirect effect of transformational leadership on innovative work behavior mediated by support for innovation (Sobel $z = 3.89$, $\beta = .128$, $p < .01$, bootstrapping on 5000 samples). There was also significant support for the mediation of perceived support for innovation between transformational leadership and individual innovation readiness (Sobel $z = 5.62$, $\beta = .124$,

$p < .01$, bootstrapping on 5000 samples). SEM showed similar effects, while controlling for employees' gender and tenure. Transformational leadership was significantly linked to innovative work behavior and, this direct effect decreased when support for innovation was added as a mediator ($\beta = .41$, $p < .01$, Table 2). Therefore, H2 was supported.

Thirdly, transformational leadership was significantly linked to innovative work behavior and, this direct effect decreased when individual innovation readiness was added as mediator ($\beta = .37$, $p < .01$, Table 2, Sobel $z = 5.86$, $\beta = .404$, $p < .01$, bootstrapping on 5000 samples). Therefore, H3 was supported.

Finally, as an important precondition for H4, we found a significant positive relationship between support for innovation and innovative work behavior ($\beta = .19$, $p < 0.01$, Table 2). A Sobel test with bootstrapping on 5000 samples indicated a significant indirect effect of support for innovation on innovative work behavior, mediated by innovation readiness (Sobel $z = 6.59$, $\beta = .192$, $p < .01$); it supported H4. Support for innovation was significantly linked to innovative work behavior and, this direct effect decreased when individual innovation readiness was added as a mediator ($\beta = .08$, $p < .05$).

In addition, structured equations modelling showed that all the predicted paths were significant (Figure 2), thereby supporting the three-path mediation model. The model included support for innovation and individual innovation readiness as mediating variables in a series. The fit statistics were: $\chi^2 = 2223.40$; $df = 985$; $p < .001$; CFI = .91; RMSEA = .05; PCLOSE = .01.

Insert Figure 2 about here

DISCUSSION

This study extends the literature on leadership and individual innovation. It proposes an integrative model that links transformational leadership to individual innovative work behavior both directly and through employees' psychological mechanisms which translate leaders' behaviors into action. The current study supports a three path-mediation model including the combined, positive influence of transformational leadership, support for innovation and individual innovation readiness on innovative work behavior. The findings are based on 428 employees from six service organizations. They support our hypothesis that transformational leadership enhances innovative work behavior indirectly by creating an environment in which employees feel encouraged to try out innovative ideas and approaches. The results show that, through this perceived support for innovation, transformational leaders facilitate employees' readiness for innovation which, in turn, positively affects their innovative work behavior. The findings are consistent with the studies by Avolio et al. (2004), Gumusluoglu and Ilsev (2009), De Jong and Den Hartog (2007), Afsar, Badir, and Saeed (2014), Slåtten and Mehmetoglu (2015) and To, Herman, and Ashkanasy (2015). These positive relationships have no connection with the employees' tenure, job level, role or educational qualification. However, the analysis shows that male employees are readier to innovate and are more innovative than female employees (Reuvers et al., 2008; De Jong & Den Hartog, 2010).

First, the mediating effect of perceived support for innovation between transformational leadership and innovative work behavior is congruent with the findings by Scott and Bruce (1994) from a sample of knowledge workers. Employees from the service sector, where the work tends to be knowledge-intensive with a low degree of role interdependence, show a positive connection between the perceived support for

innovation and their own readiness for innovation and innovative work behavior. Employees who experience greater emotional safety, through the trust and respect provided by their transformational leader, feel free to propose unconventional ideas and can challenge others' opinions without fear (Agle et al., 2006). Consequently, employees work with more enthusiasm and thereby demonstrate innovative work behavior (Agle et al., 2006; Amo, 2006). On the other hand, Axtell et al. (2000, 2006) found that support for innovation (i.e., innovation climate) is only important to realize innovative outcomes, that is, in the implementation stage of the innovation process. In this study we combine the various innovation stages into one. Investigations of innovation climate in conjunction with transformational leadership should try to distinguish between various stages of innovation.

Second, regarding the mediating effect of individual innovation readiness between transformational leadership and innovative work behavior, leaders should encourage employee motivation and readiness for innovation by building a relationship with them and by considering individual's aspirations and needs when developing them. Employee innovative work behavior increases when their leaders communicate, motivate and create opportunities for the development of or satisfaction with individual needs. Leaders should also stimulate their employees intellectually to re-examine any assumptions in their work: To enable them to think about solving new or old problems (Abrell-Vogel & Rowold, 2014) and increase their confidence to generate alternative solutions and implement them (Bass & Avolio, 2004; De Jong & Den Hartog, 2010). Future research should look into the mediating effects of individual readiness for innovation, between each element of transformational leadership behavior, on innovative employee behavior. It would fit the current drive to examine micro behaviors of both effective leaders (Yukl, 2012) and of followers alike (Qu, Janssen & Shi, 2015; Uhl-Bien et al., 2014).

PRACTICAL IMPLICATIONS

The findings of this study suggest that managers should engage in the transformational leadership style in order to promote innovative work behavior among their employees. Particularly, they must ensure that employees sense they are sufficiently supported by them so that they feel ready to innovate. To achieve this, managers should (1) build individualized relationships with employees and consider their needs, aspirations, and skills, (2) articulate an exciting vision of the future and inspire and motivate employees to work towards this vision, also as role models, and (3) stimulate them intellectually by broadening their interests and encouraging them to think about old problems in new ways. Hence, if organizations want their employees to be innovative, they should implement transformational leadership courses in which managers can learn how to build effective relationships, as well as how to encourage, motivate and stimulate their employees intellectually.

Besides guiding and motivating the employees through role-modelling, leaders ought to permit employees to participate in making decisions and setting performance standards. This can be done through consulting, delegating and assigning challenging tasks to employees. The more employees can participate in decision-making, have freedom to plan and act, and feel challenged by their tasks, the more enthusiastic and committed they will be to innovate. In addition, leaders must provide support, recognition and resources for innovation. The more leaders demonstrate confidence in their employees, praise or appreciate their innovative efforts, and enact their support through extra time and budget, the more employees can focus on being innovative at work rather than worrying about being punished or unable to realize innovations.

The findings also show that employees' individual innovation readiness necessitates leaders to act like coaches and mentors for innovation (Jansen, 2000). By the

use of the ‘individual readiness for innovation’ concept, rather than ‘resistance to innovate’, we suggest that human resource and organizational development practitioners will also promote employee attitudes towards continuous innovation and innovative job performance. Transformational leaders would need to be enabled to positively influence those staff employees in innovation readiness and innovative work behavior.

This study is the first to investigate transformational leadership and its effect on individual innovative work behavior on the work-floors of the service industry in a developed and competitive country. The results may extend our understanding of innovation to countries with a similar structure, conditions and institutions as Singapore (Engelen et al., 2014). Since this study’s outcome suggests that transformational leadership is an important determinant of individual innovative behavior, we recommend that transformational leadership should become a standard subject of management training and development, particularly in the service sector.

This study also contributes to the studied employees’ and leaders’ awareness by providing them with a personalized feedback report and recommendations for possible interventions to address any gaps. Similar assessments and feedback can be used by HR professionals or management coaches as part of leadership and/or individual innovation readiness development programs (Ma & Pilar, 2014). The results may lead to various other coaching and consulting interventions.

STRENGTHS, LIMITATIONS AND FURTHER RESEARCH

The cross-sectional research design offers a first attempt at modelling serial mediation between effective leadership and innovative work behavior. Future research must take a longitudinal approach and re-evaluate innovative employee behavior after a period of at least one year. Employee’s innovative work behavior could stimulate innovation readiness over time, as well as reinforces manager’s support for innovation.

Future studies should also include managers as a second source of data; to reduce common source bias (but this risk is limited) (e.g., Cheong et al., 2016). Although the used measures in the current study have precedents in the innovation literature, they may not have captured individual innovative work behavior fully. Objective measures of innovations such as patent counts and technical reports are usually only available for highly specific, knowledge-intensive tasks (e.g., scientists and R&D workers). In more regular service contexts, we advise manager and peer (or 360°) ratings of individual innovation and innovative work behavior to be included in future studies. Moreover, individual creativity may need to be included in follow-up studies as an additional predictor or mediator.

It is known that innovative work behavior has positive effects on job performance (Harari, Reaves, & Viswesvaran, 2016). As this study focused on examining the mediators between transformational leadership and innovative work behavior, we did not measure their effects on factors such as in-role job performance. There might be some tension between generating and implementing new work ideas and fulfilling common duties (Janssen, 2000; Tang & Chang, 2010; Riaz, Xu, & Hussain, 2018). Thus, future studies must take into account other output measures beyond innovative work behavior.

Another angle for future research is to examine not only the enabling factors of innovative work behavior, but also the obstacles to innovation at the individual, team, inter-team or organizational level. This includes: people's experiences of work load or pressures; how trustworthy or genuine people perceive their leaders to be; people's ability to cover the entire spectrum of innovation, etcetera. As our current model predominantly covers positive relationships, it could be improved by also incorporating darker psychological mechanisms that play a role in not achieving innovative work behavior.

The Singaporean sample provides unique insights into the determinants of innovative work behavior in a Confucian Asian culture (Dorfman et al., 2012; Wan, Ong, & Lee, 2005; Wong & He, 2005). However, some of the participating organizations had employees from Europe, USA and other parts of Asia. While national-cultural differences were not examined, these could be included in future studies. It is high time that multiple-level, cross-cultural longitudinal field studies examine these intriguing and economically important psychological phenomena further.

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FIGURE 1

Hypothesized Determinants of Innovative Work Behavior

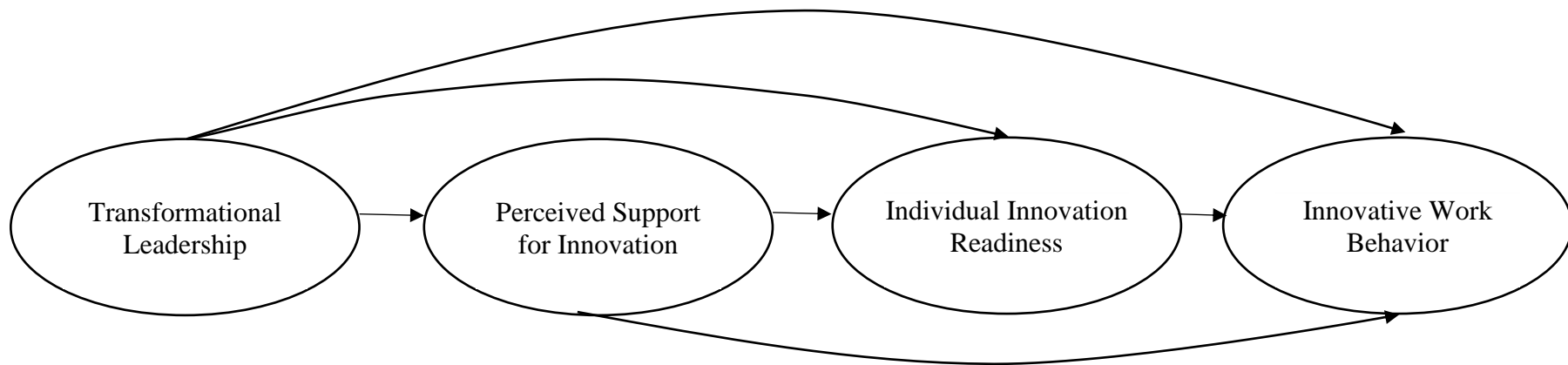


FIGURE 2

Obtained Three-path Model of Innovative Work Behavior

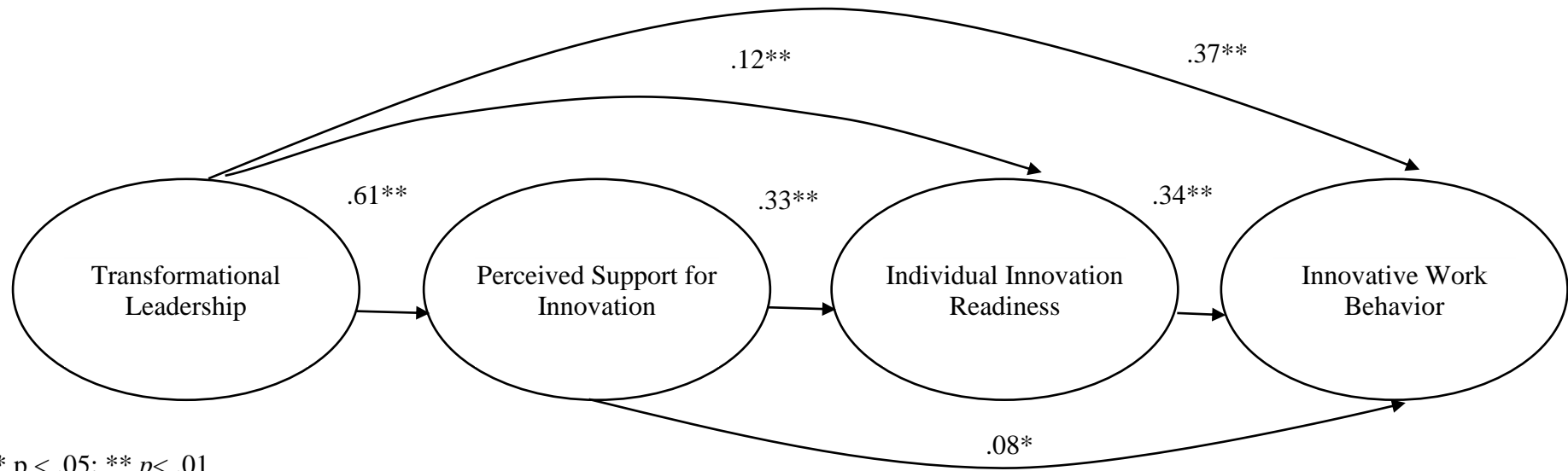


TABLE 1**Summary of Descriptive Statistics and Zero-order Correlations (N = 428)**

Variables	Mean	s.d.	1	2	3	4	5
1. Transformational Leadership	5.06	1.13	(.97)				
2. Perceived Support for Innovation	4.96	.94	.62**	(.86)			
3. Individual Innovation Readiness	5.69	.70	.33**	.41**	(.90)		
4. Innovative Work Behavior	4.79	1.09	.55**	.46**	.52**	(.93)	
5. Gender	1.42	.49	.10*	.09**	.16**	.25**	
6. Tenure	3.39	3.73	-.01	.05	.04	.02	-.04

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

Note. Cronbach alphas are presented on the diagonal between brackets.

TABLE 2

Regression Results for Support for Innovation, Innovation Readiness and Innovative Work Behavior

Variable	Perceived Support for Innovation		Individual Innovation Readiness			Innovative Work Behavior			
	Step 1	Step 2	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 4
Gender	.09	.03	.16**	.13**	.13**	.25**	.20**	.19**	.15**
Tenure	.05	.06	.05	.05	.05	.03	.03	.02	.01
Transformational Leadership		.61**		.32**	.12*		.53**	.41**	.37**
Perceived Support for Innovation					.33**			.19**	.08*
Individual Innovation Readiness									.34**
Degrees of freedom	403	402	403	402	401	403	402	401	400
R ²	.01	.38	.03	.13	.10	.06	.34	.36	.46
ΔR ²		.37		.13	.07		.28	.02	.10

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

Note. There was no evidence of multicollinearity because none of the variance inflation factors were greater than 5.0.