

PERCEIVED SUPPORT FOR INNOVATION AND INDIVIDUAL INNOVATION READINESS AS MEDIATORS BETWEEN TRANSFORMATIONAL LEADERSHIP AND INNOVATIVE WORK BEHAVIOUR

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ABSTRACT

While transformational leadership is often seen to induce innovative work behaviour of employees, little is known about the psychological mechanisms through which this effect occurs. This research conceptualises the mediating effect of perceived support for innovation and individual innovation readiness in a series between transformational leadership on innovative work behaviour. We use the responses of 428 employees from six service organisations in Singapore to test our three-path mediation model. As hypothesised, the data supported the three-path mediation model. Results revealed 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 organisational development interventions, with the objective of facilitating innovation in the workforce.

Keywords: *Innovative work behaviour; transformational leadership; support for innovation; individual innovation readiness*

1. INTRODUCTION

The world's economic landscape is changing and is characterised, in part, by the fact that the service sector is the largest and fastest growing sector in the world economy: The 2011 World Development Indicators show that in 2010 the service sector accounted for almost 71% of global GDP. It is expanding at a quicker rate than the agriculture and the manufacturing sector (Barrett et al., 2015). As companies acknowledge the existence of the service challenges, they may also recognise the need to stay innovative in their offerings so they are prepared for increasing global competition. Hence, more innovative behaviour is expected from (non-)managerial employees in regular service organisations (Drucker, 2014). To motivate service employees to innovate, the role of managers as innovative service leaders has received attention of researchers and consultants alike. Through transformational leadership (TFL), many more employees than ever before are motivated to display innovative behaviours (Piccolo & Colquitt, 2006; Slåtten & Mehmetoglu, 2015). How transformational leaders affect innovative work behaviour (IWB) of their followers has not been adequately researched (Gong et al., 2009; Jung et al., 2003). In terms of the relation between individual perceptions of TFL and employee IWB, minimal research attention has been given to the psychological mechanisms between TFL and IWB (Denti & Hemlin, 2012; Malloch, 2014). The present study has two intended contributions with regard to those mediating mechanism between organisational leadership and innovative behaviour at work. First, we examine the impact of TFL on employee IWB and innovation readiness for IWB. Second, we investigate whether the relationship between TFL and employee IWB is mediated by employee

perceived support for innovation as well as innovation readiness. A model of TFL that includes these mediating effects on IWB was developed for this purpose, see Figure 1.

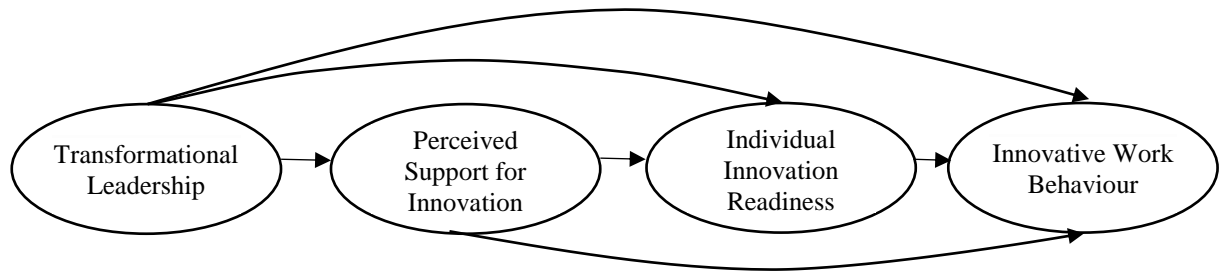


Figure 1: Hypothesised Determinants of Innovative Work Behaviour

2. LITERATURE REVIEW

2.1 TRANSFORMATIONAL LEADERSHIP AND IWB

Employee IWB refers to employee recognition of problems and intention to introduce new and useful ideas and a set of accompanying behaviours needed to develop, launch and implement ideas with an aim to enhance job and/or organisational performance (Baer, 2012; De Jong & Den Hartog, 2010; Somech & Drach-Zahavy, 2013). IWB is known to be affected by organisational commitment, organisational innovation climate, leadership, social capital and work characteristics (Ma & Pilar, 2014). Transformational Leaders (TL) influence followers and stimulate their innovative behaviour by enhancing their identification with the organisation and its leadership (Jung et al., 2003, 2008; Qu et al., 2015).

Employee IWB is induced in various ways by TL. First, TL typically take risks to try new ways of working, change existing processes and systems for long-term benefit, and help followers to think about exploiting opportunities more effectively (Pearce & Ensley, 2004). Qu et al. (2015) argued that TL inspire employees to display creative endeavours and increase their problem-solving and analytical abilities. TL help followers to strive for more challenging goals by changing follower's propensity for creative perspective (Whittington et al., 2004). They may provide a personal as well as collective value system, access to resources and information, effective communication, self-confidence and inner direction. When followers' needs and expectations are being considered, followers tend to reciprocate by exploring new opportunities for resolving important organisational issues. TL helps to balance short-term goals with opportunity exploitation and motivate employees to take risks associated with trying out new processes. Therefore, we hypothesise that:

Hypothesis 1: TFL is positively related to employees' IWB.

Although it is reasonable to expect managers' leadership behaviour to directly influence IWB, it is important to understand the mediating processes between employees' translation of leaders' behaviours into own actions (Jung & Chow, 2008; Mumford et al., 2002; Scott & Bruce, 1994). In the following sections, we develop expectations of how two mediators – support for innovation and individual innovation readiness – work between TFL and IWB.

2.2 SUPPORT FOR INNOVATION AS MEDIATOR

The effect of employees' perceived support for innovation on innovative behaviours has been empirically examined in past studies (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 behaviour. However, Mumford and Gustafson (1988, p. 37) have 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 emphasise reliable and efficient operations without any mistakes, employees will be discouraged from taking initiative in their work even if they are given autonomy due to potentially negative consequences of risky decisions (Yukl, 2008). However, when an organisational climate values initiative and innovative approaches, employees 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 the workplace is likely to influence their IWB. So is their perception of their involvement in decision-making and the level to which organisational resources are allocated to supporting innovation. Hence, when they perceive their department as open to change, safe to participate with an availability of adequate resources, they are more likely to perceive the work environment as being supportive of innovation. Then they take risk and champion innovation.

The relationship between TFL and IWB 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 lead employees to be more innovative (Reuvers et al., 2008). Earlier research evidence treating support for innovation as an important contextual variable between TFL and innovative work behaviour is limited. For instance, Mumford et al. (2002) suggest that TL may influence organisational climate, mediating the relationship between TFL and IWB. Jung et al. (2003) concluded that empowerment and support for innovation mediate the relationship between TFL and organisational innovation. A study by De Jong (2013) found that contextual variables like innovative climate moderate the relationship between leader's behaviour and IWB. However, this area is relatively unexplored and needs attention. The current research fills this gap by examining the mediating role played by support for innovation in the relationship between TFL and employees' IWB.

Previous research relating to TFL and innovation was dominantly focused at the organisational level (Gumusluoglu & Ilsev, 2009; Jung et al., 2003) and conducted in a Western context (Michaelis et al., 2010). There are very few empirical studies examining the relationship between TFL and IWB 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 IWB in a non-Western society, like Singapore.

Hypothesis 2: Support for innovation mediates the relationship between TFL and employees' IWB.

2.3 INDIVIDUAL INNOVATION READINESS AS MEDIATOR

Another individual-level mechanism impacting follower's behaviour pertains to their intrinsic motivation to innovate. Such "individual readiness for innovation" is a cognitive factor: 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) have shown that intrinsic motivation is a strong predictor of employee's innovative behaviour.

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 (2010) 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 organisation and employees (Holt et al., 2007, Choi & Ruona, 2011). IWB will occur if the individual judge that the work situation needs an innovative change and is liable to change (Rafferty & Simons, 2006; Holt et al., 2007).

The role of TFL in formulating and modifying the support for innovation climate strongly impacts employees' readiness for innovation (Fernet et al., 2015). Leaders' vision 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 IWB (Yukl, 2008). Hence:

Hypothesis 3: Individual innovation readiness mediates the relationship between TFL and IWB.

Because in many organisations, change constitutes part of the daily routine that is supported and encouraged, it is likely that 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 therefore will be less resistant to change, and thus 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 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 IWB.

3. METHODS

3.1 SAMPLE AND PROCEDURE

We pilot tested the prospective survey on the corporate service staff in one educational institute in Singapore ($N = 48$; 97.96% response rate). Based on factor and reliability analysis and participants' feedback, we amended the instrument. Then, during Autumn and Winter 2017, we surveyed 679 employees from six organisations in the Singapore service sector. These organisations employed between 60 to 1,800 employees, which provide 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 analysis were performed with data from 428 remaining respondents ($M_{age} = 35.57$ years; 55.6% females; $M_{tenure} = 3.39$ years; $M_{roletenure} = 3.78$ years; 69.8% had at least a degree qualification). These employees had different jobs, including customer service, front- and back-office work, administration, education, consulting and technology design.

3.2 MEASURES

The survey comprised four validated and published scales, which were also confirmed by an exploratory factor analysis 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 behaviour consisted of nine items based on Janssen's (2000) work on 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 developed by Rafferty (2013). The items were rephrased from 'change' to 'innovation'. All items are anchored at a seven-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7). After the factor analysis results, three items with loadings less than 0.50 were removed. The remaining seven items loaded on 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. It is anchored at 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 TFL (Bass and Avolio, 1997). The employees were asked to rate the frequency with which their direct supervisors displayed different behaviours, 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 IWB and performance (Mumford et al., 2002; Reuvers et al., 2008). In our study, respondents' gender and tenure were included as control variables.

3.3 DATA ANALYSIS

Descriptive statistics and intercorrelations are listed in Table 1. Since all measurement scales were self-reported, we conducted Harman's one-factor test (Harman, 1976). A principal component factor analysis found that one single factor explained 34.29% of the variance of all used items (Podsakoff & Organ, 1986). We concluded therefore that common method variance was not a major problem (Kline, 2014). To test our hypotheses, we performed hierarchical linear modelling (HLM), supplemented with structural

equation modelling (SEM) through AMOS 20.0 with Maximum Likelihood bootstrapping as well as a Sobel test of the indirect effects.

4. RESULTS

4.1 CORRELATION ANALYSIS

The bivariate relationships (Table 1) indicate that all the independent variables were significantly related to IWB with correlations equal to or higher than $r = .46, p < 0.01$. It can also be seen that there was a significant, positive correlation between TFL and support for innovation ($r = .62, p < 0.01$) as well as between TFL and innovation readiness ($r = .33, p < 0.01$), and a positive correlation between support for innovation and innovation readiness ($r = .41, p < 0.01$).

| 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 Behaviour | 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 1. Summary of Descriptive Statistics and Zero-order Correlations ($N = 428$)

4.2 HYPOTHESIS TESTING

HLM showed support for H1 that proposed a relationship between TFL and IWB (Table 2: $\beta = .53, p < .01$).

| Variable | Perceived Support for Innovation | | Individual Innovation Readiness | | | Innovative Work Behaviour | | | |
|----------------------------------|----------------------------------|--------|---------------------------------|--------|--------|---------------------------|--------|--------|--------|
| | 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.

Table 2. HLM Results for Support for Innovation, Innovation Readiness and IWB

Next, we tested H2: following Baron and Kenny (1986). We found a significant relationship between TFL and individual innovation readiness ($\beta = .32, p < .01$, Table 2); and between TFL and IWB ($\beta = .53, p < .01$, Table 2). Moreover, a Sobel test indicated a significant indirect effect of TFL on IWB 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 support for innovation between TFL 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. TFL was significantly linked to IWB, and this direct effect decreased when support for innovation was added as mediator ($\beta = .41, p < .01$). Therefore, H2 was supported. Thirdly, TFL was significantly linked to IWB, 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 IWB ($\beta = .19, p < 0.01$, Table 2). A Sobel test with bootstrapping on 5000 samples indicated a significant indirect effect of support for innovation on IWB, mediated by innovation readiness (Sobel $z = 6.59, \beta = .192, p < .01$); it provided support for H4. Support for innovation was significantly linked to IWB, and this direct effect decreased when individual innovation readiness was added as a mediator ($\beta = .08, p < .01$).

In addition, SEM showed that all predicted paths are 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: $\chi^2 = 2223.40; df = 985; p < .001; CFI = .91; RMSEA = .05; PCLOSE = .01$.

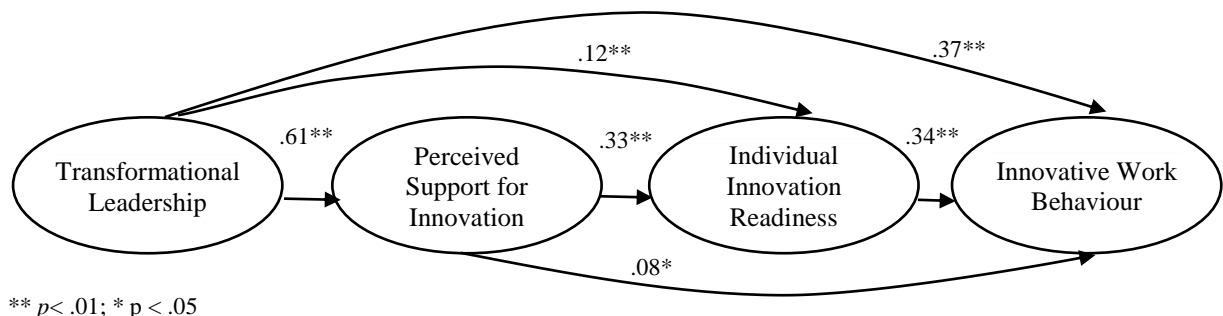


Figure 2. Obtained Three-path Model of IWB

5. DISCUSSION

This study extends the literature on leadership and individual-level innovation. It empirically examines an integrative model that links TFL to individual IWB through two psychological processes of followers. The current study among the employees of six service organisations supports our hypothesised three path-mediation model linking TFL to support for innovation, individual innovation readiness, and, in turn, IWB. Employee IWB increases when immediate leaders communicate, motivate and create opportunities for developing their staff's abilities. TL create a favourable environment for innovation, which stimulates followers to re-examine existing assumptions (Choi & Ruona, 2011). These leaders increase followers' confidence to generate alternative solutions and implement them (De Jong & Den Hartog, 2010).

In terms of the theoretical contribution, this study tests and supports an advanced mediation model: While previous studies have linked individual psychological processes such as perceived support for innovation and individual innovation readiness to IWB, we show how these mechanisms work in a series. Consistent with Lloréns et al. (2004) and Jung and Chow (2008), TL is likely to enhance employee efficacy for innovation as well as the willingness to innovate. Employees who experience greater trust and respect provided by their TL feel free to propose unconventional ideas and challenge others' opinions without fear (Agle et al., 2006). Consequently, employees work with more enthusiasm and thereby demonstrate IWB (Agle et al., 2006). These findings spark many practical implications and future research.

6. PRACTICAL IMPLICATIONS

Clearly, managers should adopt TFL to promote IWB among their followers. 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 individualised relationships with employees and consider their needs, aspirations, and skills, (2) articulate an exciting vision of the future and inspire and motivate employees, also as role models to work towards this vision, and (3) stimulate them intellectually by broadening their interests and encouraging them to think about old problems in new ways. Hence, if organisations want their employees to be innovative, they should implement TFL courses in which managers can learn how to effectively build relationships, encourage, motivate and intellectually stimulate their employees.

7. LIMITATIONS AND FURTHER RESEARCH

The cross-sectional research design offers a first attempt at modelling serial mediation between leadership and IWB. Future research must take a longitudinal approach and re-evaluate innovative employee behaviour after a period of at least one year. Such studies should also include managers as a second source of data, also to reduce common source bias, although the risk is quite low (e.g., Cheong et al., 2016). Although the used proxies have precedents in the innovation literature, they may not address individual IWB fully here. Objective measures of innovations such as patent counts and technical reports are usually only available for specific tasks (e.g., scientists and R&D workers). Accordingly, we advise managers and peer ratings of individual innovation and IWB to be included in future studies. Moreover, in follow-up studies, individual creativity may need to be included as an additional predictor or mediator.

Although this study was performed in Singapore, some of the participating organisations 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 further examine these intriguing and economically important work-psychological phenomena.

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