How responsible leadership predicts organizational citizenship behavior for the environment in China

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Abstract

Purpose – The purpose of this paper is to investigate the mediating effect of felt obligation for constructive change on the relationship between responsible leadership and organizational citizenship behavior for the environment (OCBE) in a China corporate environment, and this paper also analyze the moderated mediating effect of supervisor-subordinate guanxi on indirect relationship between responsible leadership and OCBE via felt obligation for constructive change.

Design/methodology/approach – This paper used 380 employee samples to analyze the relationship between responsible leadership and OCBE. Hierarchical regression analyses and structural equation modeling was adopted to analyze the data.

Findings – The authors found that the felt obligation for constructive change plays a fully mediating role between responsible leadership and OCBE. The authors also found a positive interaction between responsible leadership and supervisor-subordinate guanxi on felt obligation for constructive change, and then the indirect effect of responsible leadership on OCBE via felt obligation for constructive change was stronger when employees perceived a high-level supervisor-subordinate guanxi.

Research limitations/implications – When responsible leadership stimulates employees to generate a high sense of constructive change, employees are more likely to engage in OCBE. This study provides evidence for cognitive evaluation theory. This study further demonstrated the importance of establishing high-quality supervisor-subordinate guanxi for responsible leaders and subordinates in China.

Practical implications – In the management practice of the organization, the role of responsible leadership should be strengthened in terms of leadership development and, employee training and promotion, and high-quality supervisor-subordinate guanxi help to promote the effectiveness of responsible leadership.

Originality/value – This paper discusses how and when responsible leadership influences OCBE in a China corporate environment.

Keywords Responsible leadership, Felt obligation for constructive change, Organizational citizenship behaviour for the environment, Supervisor-subordinate guanxi

Paper type Research paper

1. Introduction

With global environmental deterioration, an increasing number of people are focusing on sustainable development management (Bansal and Song, 2017). In the sustainable management of enterprises, many scholars examine environmental behavior at the strategic level but neglect environmental behavior at the employee level (Galpin and Whittington, 2012).
Because employees implement enterprise strategies, their environmental behavior plays an important role in promoting sustainable management at the enterprise level (Felin et al., 2015). In this context, organizational citizenship behavior for the environment (OCBE) is here proposed. OCBE refers to environmental practices that employees perform in an organization that are not rewarded or required by the formal system of the organization; it supplements the environmental protection behavior of social citizens and the green development strategy of enterprises (Daily et al., 2009). Employees engage in OCBEs at work, concretely put environmental protection intentions and ideas into practice, and fulfill the requirements of the organization’s green strategy and policy (Ramus and Steger, 2000). Employees’ OCBEs can have a significant impact on environmental performance (Lamm et al., 2015; Paille et al., 2013; Paille and Mejia-Morelos, 2014; Temminck et al., 2015). Therefore, it is particularly important to explore the antecedents of employees engaging in OCBEs.

In recent years, scholars have focused on employees’ perceived organizational support (Paille and Mejia-Morelos, 2014), environmental self-responsibility (Zhang et al., 2018), corporate environmental protection measures (Paille et al., 2013), corporate environmental concerns (Temminck et al., 2015) and corporate environmental attitudes (Lamm et al., 2015). In terms of leadership behavior, research confirms that ethical leadership (Zhang et al., 2018) and leadership support for environmental protection (Priyankara et al., 2018) can enhance employees’ OCBEs.

Although a number of studies have investigated the impact of leaders on OCBEs, few scholars explore the influence of responsible leadership on OCBE. The key difference between responsible leadership and other classic leadership concepts (e.g. transformational leadership, ethical leadership, service leadership, and authentic leadership) is that responsible leadership focuses on society, the environment, sustainable value creation and positive change (Pless et al., 2011) and coordinated development between people, nature and society. Responsible leadership takes the ecological environment as an important stakeholder, which coincides with the purpose of OCBE. In this study, we begin to address these gaps in the literature by investigating how responsible leadership encourages employees to engage in OCBEs.

This paper makes several significant contributions to the emerging literature on responsible leadership and OCBE. First, while classic leadership behavior theories focus on the interaction between superiors and subordinates within an organization, responsible leadership considers the interests of people, the environment and stakeholders. This study will enrich understanding of the antecedents of OCBE. Second, the influence of responsible leadership on OCBE will be affected by individual values, environmental attitudes and organizational situations. This study also explores the mediating role of felt obligation for constructive change between responsible leadership and OCBE. Thus, this paper has the potential to reveal the intricate mechanism behind how employees’ OCBEs at work occur. Third, conducted in the Chinese context, this study illustrates how OCBE occurs in non-western settings. Despite over 40 years of cultural modernization in China, supervisor-subordinate guanxi remains the most critical interpersonal relationship in different Chinese settings and has been considered to correspond to the historical ruler–subject relationship (Wei et al., 2010). This paper analyzes the moderating effect of supervisor-subordinate guanxi, which has proven to be a key antecedent to the various work attitudes and behaviors of both employees and their supervisors (Zhang et al., 2014) (Figure 1).

2. Theoretical basis and research hypothesis

2.1 Responsible leadership and OCBE

OCBE refers to the environmental practices that employees perform in an organization that are not rewarded or required by the organization’s formal system. It is a supplement to the environmental protection behavior of citizens and the green development strategy of
enterprises (Daily et al., 2009). For example, employees save office paper, reduce energy consumption, help colleagues engage in environmental activities and make recommendations to the organization about environmental protection. In an organization, employees’ environmental protection behavior in the workplace is inevitably affected by the organizational context. Leadership behavior affects the attitudes and behaviors of subordinates through interactions. Therefore, leadership behavior has an important impact on OCBE. Responsible leadership not only focuses on people and society but also considers the ecological environment as an important stakeholder. In terms of responsible leadership, leaders intend to display beneficence and nonmaleficence. Beneficence is indicative of the normative morality of leaders, such as paying attention to employees’ health, community environmental protection and charity. Nonmaleficence is the manifestation of the prohibitive morality of leaders, such as ensuring food safety, resisting corruption and avoiding environmental pollution (Stahl and de Luque, 2014). Responsible leadership pursues the harmony between man and nature, which is consistent with the concept of employees engaging in OCBEs to protect the ecological environment.

According to the Social Learning Theory, individuals can copy and learn the behavior of others by observing and imitating their values and behaviors (Bandura, 1986). OCBE are voluntary extra-role behaviors. In their interaction with responsible leaders, employees generate the initiative to engage in environmental practices by observing and imitating the ideas and behaviors of these responsible leaders. Previous-related research has found that responsible leadership can significantly affect employees’ organizational citizenship behavior (Lord and Brown, 2001). Responsible leadership is based on stakeholder theory and combines the conceptual connotations of leadership ethics and corporate social responsibility: it strives to achieve harmony between people and society and the environment. Therefore, responsible leadership not only contains the ethical valuing of nature but also reflects corporate social responsibility. First, responsible leadership is a moral example that motivates employees to pay attention to environmental issues while at the same time creating a good organizational atmosphere that encourages employees to actively engage in environmental behavior. Research finds that ethical leadership can enhance employees’ OCBEs (Zhang et al., 2018). Second, responsible leadership focuses on the interests of stakeholders inside and outside the organization, fulfills social responsibilities and enhances employees’ perception of corporate social responsibility. It inspires employees to actively participate in social responsibility activities (Voegtlin et al., 2012), thereby enhancing employees’ OCBEs.

In summary, this paper holds that responsible leadership pays attention to the ecological environment and seeks a balance between man and nature. It practices corporate social responsibility through practicing morality to improve the environmental behavior of employees:

\[ H1. \] Responsible leadership has a positive impact on OCBE.
2.2 Responsible leadership, felt obligation for constructive change and OCBE

Felt obligation, a type of self-concept, is the individual’s thoughts and perceptions and specifically captures the individual’s perception of responsibility for and obligation toward the results of his work (Culbert, 1974). Felt obligation for constructive change refers to the individual’s initiative in assuming responsibility for and feeling an obligation toward work results, his willingness to adopt processes to improve work efficiency and work methods and his goal to change the status quo of work (Liang et al., 2012). Compared with felt obligation, felt obligation for constructive change emphasizes individuals actively setting higher goals and improving methods to change the status quo. Responsible leadership pays attention to the interests of people, society and the ecological environment. Responsible leadership conveys a sense of responsibility and obligation toward the interests of stakeholders manifested by establishing models and actively seeking change. Subordinates observe and imitate the behavior of leaders through interaction with them, and gradually internalize leaders’ values and increase their felt obligation. Relevant research confirms that responsible leaders actively practice social responsibility, communicate with various stakeholders and consider the interests of all parties in decision making. Subordinates can enhance their sense of responsibility through imitation and learning and use it to guide their own behavior and actively participate in social responsibility activities. At the same time, responsible leaders encourage employees to participate in management and decision making, demonstrating the organization’s respect for employees. This behavior enhances employees’ awareness of the organization, such as creating a sense of ownership and improving employees’ identification with the organization. It makes employees willing to share responsibility with enterprises and perform proactive behaviors, such as organizational citizenship behavior (Parker and Pascarella, 2013). Some research notes that responsible leadership can improve employees’ psychological ownership and stimulate their work motivation, affecting their output (Doh and Quigley, 2014). Therefore, responsible leadership may increase employees’ felt obligation for their work objectives by increasing their recognition of the organization. This study proposes that responsible leadership strengthens employees’ felt obligation in the social learning process:

H2. Responsible leadership has a positive impact on employees’ felt obligation for constructive change.

OCBE are the embodiment of the “good citizen” behaviors that society expects and are performed in an organization but not rewarded or required by the formal system of the organization (Daily et al., 2009). According to social cognitive theory, people can learn indirectly by observing the behavior of others (Bandura, 1997). Observational learning consists of four processes: attention, retention, repetition and motivation (Bandura, 1986). When the employee perceives that responsible leaders are paying attention to environmental protection, observing the learning process will increase the employee’s sense of responsibility for the environment and motivation to engage in environmental protection behavior.

Felt obligation for constructive change reflects employees’ psychological state of feeling responsible for the results of their own work, which is indicative of their having “autonomous motivation” (Parker and Turner, 2002). As demonstrated earlier, responsible leadership enhances employees’ felt obligation for constructive change. When responsible leaders focus on environmental issues, employees’ perception of their own constructive responsibility for environmental protection also increases.

When employees have “autonomous motivation,” they will actively work hard to improve their work performance and assume responsibility for their work results (Parker and Turner, 2002). First, felt obligation has a positive impact on employee attitudes, such as identity and commitment to the organization (Eisenberger et al., 2001). Second, employees
with a high felt obligation will not only invest more time and energy in their own work but also take the initiative to go beyond the requirements of their work to engage in extra-role behaviors that are beneficial to organizational and public welfare (Eisenberger et al., 2001; Pearce and Gregersen, 1991). Employees with a high felt obligation for constructive change will actively repay the care of leaders and the organization, and they are willing to become a “good citizen” (Maak, 2007) to protect the interests of stakeholders (Maak, 2007). At the same time, felt obligation for constructive change can often encourage employees to adopt constructive behaviors that benefit others or other organizations (Fuller et al., 2006). OCBE is conducive to achieving the environmental performance of the organization and is in line with the interests of the society. Therefore, felt obligation for constructive change supports employees adopting OCBEs.

In a word, responsible leadership can stimulate subordinates’ motivation to protect the environment (felt obligation for constructive change) and further urge them to engage in OCBEs:

H3. Felt obligation for constructive change plays a mediating role between responsible leadership and employees’ OCBEs.

2.3 Supervisor-subordinate guanxi

Guanxi is usually considered an indigenous Chinese concept (Law et al., 2000). Guanxi is driven by personal interests and needs and can be built on a relationship forged by birth or blood (e.g. neighbors and relatives) or through social interactions and acquaintances (Chen and Tjosvold, 2007). Long-term reciprocal exchanges can maintain and reinforce guanxi, which can be transferred through a third party as a referral (Luo, 2000; Chen and Tjosvold, 2007).

As a form of guanxi, supervisor-subordinate guanxi represents the informal personal relationship between a leader and subordinates outside the scope of work (Law et al., 2000). In China, although management rules are increasingly valued, guanxi still dominates in Chinese society (Zhang and Keh, 2010). In the organization, employees generally attach importance to building good guanxi with leaders. High-quality supervisor-subordinate guanxi often brings more promotions or rewards to employees (Wang et al., 2011). Based on relevant research, we believe that high-quality supervisor-subordinate guanxi helps to enhance employees’ felt obligation for constructive change. First, employees are psychologically safe when they have built high-quality supervisor-subordinate guanxi. High-quality guanxi between employees and superiors determines the identity of employees in the “circle” (Kenneth et al., 2000), and individuals need to join a group or create a “circle” to improve their psychological security (Wang, 2015). To maintain this sense of security, employees will feel greater responsibility and obligation toward changing the status quo. They will be more responsible for the goal and feel an enhanced sense of constructive responsibility. Second, high-quality supervisor-subordinate guanxi allows employees to obtain more resources. When employees receive more leadership support and support resources from the organization, it improves their confidence about changing the status quo, thereby enhancing their felt obligation for constructive change.

According to the theory of social exchange, exchanges in human society mainly include instrumental and emotional resources (Blau, 1964). Employees develop interpersonal relationships with their superiors outside of work, exchange emotional resources and thus influence interactions at work. In the organization, leaders have a certain impact on employees’ work and life. Therefore, the guanxi between employees and leaders is highly important, and high-quality supervisor-subordinate guanxi is an important foundation for leadership effectiveness. The better the guanxi between employees and superiors is, the more resources and support will be provided by the leaders and the organization (Liu et al., 2008;
Zhang et al., 2012). When the guanxi between the superior and subordinate is of high quality, responsible leaders will provide various resources and the support required for the subordinates' responsibilities, which will enhance their confidence in achieving their objectives, improve their work methods and enhance their felt obligation for constructive change. In addition, according to Social Learning Theory (Bandura, 1986), employees can learn through direct personal experience and observation of others' behavior, especially by observing others they appreciate and who have high status (Liu et al., 2015). Studies have shown that high-quality supervisor-subordinate guanxi increases employees' trust in and obedience and devotion to their supervisors (Chen et al., 2009; Farh et al., 1998); accordingly, employees are more likely to take their leaders as a model for imitation and learning, and employees and responsible leaders have higher quality communication. Responsible leaders encourage employees to participate in decision making and enhance their autonomy, thus promoting the felt obligation for constructive change. Guanxi with supervisors promotes social exchange between employees and their supervisors through both expressive and instrumental mechanisms (Hwang, 1987), and high-level supervisor-subordinate guanxi also promotes higher quality resource exchange. Therefore, employees will reward the support of responsible leaders and organizations by demonstrating a higher sense of supervisor-subordinate guanxi. In summary, this paper proposes the following hypothesis:

**H4.** Supervisor-subordinate guanxi will moderate the effect of responsible leadership on felt obligation for constructive change. In other words, the relationship between responsible leadership and felt obligation for constructive change will be strengthened under high supervisor-subordinate guanxi.

Based on the above research hypothesis, this study further proposes a moderated-mediation model. The indirect relationship between responsible leadership and OCBE via felt obligation for constructive change will vary due to the different levels of supervisor-subordinate guanxi. Specifically, employees with a high level of supervisor-subordinate guanxi will experience a stronger indirect effect of responsible leadership on OCBE via felt obligation for constructive change, and vice versa:

**H5.** The supervisor-subordinate guanxi moderates the indirect effect of responsible leadership on the OCBE via felt obligation for constructive change. For employees with a high level of supervisor-subordinate guanxi, responsible leadership will promote the felt obligation for constructive change and subsequently improve their OCBEs; on the contrary, these will weaken for employees with low-level supervisor-subordinate guanxi.

### 3. Research methods

#### 3.1 Samples

The sample consisted of 380 corporate employees in different industries, such as banking, insurance, medicine, teaching and services. Data collection was conducted through convenience sampling. Approximately 49.0 percent of the respondents were male, and the samples had a wide range of ages. Approximately 39 percent of the respondents were between 30 and 39 years old, and 56 percent of them had a bachelor's degree. Their work experience ranged from 1 to 20 years, and approximately 32 percent of them had worked in their organization for 11–20 years.

#### 3.2 Measurement

The study contains four conceptual variables and demographic variables (as control variables); the four conceptual variables were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).
Responsible leadership. This study used Voegtlin’s scale (Voegtlin, 2011), which includes five items. The representative items were “My superiors show that they are aware of the interests of stakeholders,” “My superiors fully consider the impact of decisions on stakeholders” and “My superiors involve affected stakeholders in the decision-making process.” In this study, the Cronbach’s α for this scale was 0.821.

Felt obligation for constructive change. This study used the scale compiled by Liang et al. (2012), which includes five topics. The representative topics are “I have a responsibility to do my best to propose ideas or solutions that achieve organizational goals,” “I am obligated to present my opinions to the organization” and “I have the obligation to make constructive suggestions to help the organization achieve its goals.” In this study, the Cronbach’s α for this scale was 0.860.

Supervisor-subordinate guanxi. This study used the scale compiled by Law et al. (2000), which includes six items. The representative items were “On holidays or work days, I call my superior (leader) and visit him (her),” “My superior (leader) invites me to go to his or her home for dinner” and “On special holidays (such as the superior (leader)’s birthday), I visit the superior (leader) and give him (her) gifts.” In this study, the Cronbach’s α for this scale was 0.864.

Organizational citizenship behavior for the environment. This study used the scale compiled by Temminck et al. (2015), which includes seven items. The representative items were “I proposed environmental protection suggestions for improving work procedures,” “I proposed improving the organization’s environmental performance” and “I tried to remind managers to pay attention to activities that may be adverse for the environment.” In this study, the Cronbach’s α for this scale was 0.949.

Control variables. We also assessed demographic variables (employees’ gender, age, education level and organizational tenure) that might affect the hypothesized relationships. Gender is measured using dummy variables: 1 for men and 2 for women. Age is measured in five categories: 24 years or younger, 25–29 years old, 30–39 years old, 40–49 years old, 50 years old and above. The level of education is measured in five categories: technical secondary school and below, junior college, undergraduate, master’s degree and doctoral degree. Organizational tenure is measured in five categories: less than one year, 1–5 years, 6–10 years, 11–20 years and more than 20 years.

4. Data analysis
4.1 Descriptive statistical analysis
Table I reports the mean and standard deviation of variables as well as the correlation coefficients between variables involved in this study. Responsible leadership and felt obligation for constructive change ($r=0.273, p<0.01$), supervisor-subordinate guanxi ($r=0.169, p<0.01$) and OCBE ($r=0.126, p<0.05$) all show significantly positive correlations. Felt obligation for constructive change and supervisor-subordinate guanxi ($r=0.227, p<0.01$) and OCBE ($r=0.276, p<0.01$) are also significantly and positively correlated.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Responsible leadership</td>
<td>3.643</td>
<td>0.600</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Felt obligation for constructive change</td>
<td>4.040</td>
<td>0.529</td>
<td>0.273**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Supervisor-subordinate guanxi</td>
<td>3.103</td>
<td>0.682</td>
<td>0.169***</td>
<td>0.227**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4. OCBE</td>
<td>3.280</td>
<td>0.693</td>
<td>0.126*</td>
<td>0.276**</td>
<td>0.513**</td>
<td>1</td>
</tr>
</tbody>
</table>

Table I. Mean, standard deviation and correlation

Notes: $n=380$. *$p<0.05$; **$p<0.01$
4.2 Confirmatory factor analysis

The study measured four main variables: responsible leadership, felt obligation for constructive change, supervisor-subordinate guanxi and OCBE. In this paper, AMOS21.0 was used to perform a series of confirmatory factor analysis tests (using the maximum likelihood method, ML) to evaluate the discriminant validity between variable measurements. As shown in Table II, the degree of fit between the observed data and the hypothetical model is high ($\chi^2 = 701.070$, df = 224; RMSEA = 0.075, IFI = 0.914, CFI = 0.913). In the measurement model, the standardized factor loading of all the items in their measurement constructs is significant at the 0.01 level. All the factor loadings are above 0.6 ($p < 0.001$), and the average variance extracted (AVE) values of the constructs exceed the threshold value of 0.5. Hence, convergent validity is confirmed for the four variables of the study (Hair et al., 2010). The composite reliability values of all constructs exceed the threshold value of 0.8, ensuring internal consistency of measures (Hair et al., 2010). Discriminant validity was evident since the AVE values are greater than the squares of the inter-construct correlations. Table III shows the AVE values, composite reliability values and squares of the inter-construct correlations.

4.3 Common method biases test

In this paper, the Harman single factor was used to test for common method bias (Podsakoff et al., 2012). SPSS21.0 statistical analysis software was used for exploratory factor analysis. The results showed that the total variance interpretation was 66.823 percent, a total of four factors with feature values greater than 1 were extracted and the variance of the first factor interpretation was 33.106 percent, less than 50 percent. The analysis results showed that the first factor did not play a major role in interpreting variability, so the common method bias problem in this study was not serious.

4.4 Hypothetical test

From the analysis results of Model 1 in Table IV, it can be seen that after controlling for demographic variables, such as gender and age of employees, responsible leadership has a significantly positive impact on OCBE ($\beta = 0.112$, $p < 0.05$), and $H1$ is verified. According to Model 3, after controlling for demographic variables such as gender and age, responsible leadership has a significantly positive impact on felt obligation for constructive change ($\beta = 0.266$, $p < 0.001$), and $H2$ is verified. According to Model 2, when responsible leadership and felt obligation for constructive change are simultaneously placed in the regression equation for OCBE, the role of responsible leadership in OCBE is not significant.
Therefore, felt obligation for constructive change plays a fully mediating role between responsible leadership and OCBE (Baron and Kenny, 1986). \( H3 \) is initially verified. In addition, it can be seen from Model 5 that supervisor-subordinate guanxi interacted significantly with responsible leadership to influence felt obligation for constructive change \( (\beta = 0.135, p < 0.001) \), verifying \( H4 \). To more accurately test the mediating role of felt obligation for constructive change between responsible leadership and OCBE, this paper uses the bootstrapping method to test the indirect effect hypothesis (Mackinnon et al., 2004). The results of 2000 bootstrapping samples show that the indirect effect of responsible leadership on OCBE via felt obligation for constructive change is 0.089, and the mediating effect of the indirect path does not include 0 [0.044, 0.159] in the 95% confidence interval (CI). Therefore, \( H3 \) is verified.

### Table IV. Results of hierarchical regression analyses

<table>
<thead>
<tr>
<th>Variable</th>
<th>OCBE Model 1</th>
<th>OCBE Model 2</th>
<th>OCBE Model 3</th>
<th>OCBE Model 4</th>
<th>OCBE Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control variable</strong></td>
<td></td>
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</tr>
<tr>
<td>Gender</td>
<td>0.025</td>
<td>0.036</td>
<td>-0.046</td>
<td>-0.020</td>
<td>-0.021</td>
</tr>
<tr>
<td>Age</td>
<td>0.252***</td>
<td>0.226</td>
<td>0.106</td>
<td>0.083</td>
<td>0.087</td>
</tr>
<tr>
<td>Organizational tenure</td>
<td>-0.084</td>
<td>-0.089</td>
<td>0.022</td>
<td>0.046</td>
<td>0.042</td>
</tr>
<tr>
<td>Education</td>
<td>0.040</td>
<td>-0.033</td>
<td>-0.029</td>
<td>-0.014</td>
<td>-0.014</td>
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<tr>
<td><strong>Independent variable</strong></td>
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<tr>
<td>Responsible leadership</td>
<td></td>
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<tr>
<td>Felt obligation for constructive change</td>
<td></td>
<td></td>
<td>0.266***</td>
<td>0.236***</td>
<td>0.233***</td>
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<tr>
<td><strong>Mediator</strong></td>
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<tr>
<td>Felt obligation for constructive change</td>
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<td></td>
<td></td>
<td></td>
<td>0.241***</td>
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<tr>
<td><strong>Moderator</strong></td>
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<td></td>
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<tr>
<td>Supervisor-subordinate guanxi</td>
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<tr>
<td><strong>Interaction term</strong></td>
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<tr>
<td>Responsible leadership × supervisor-subordinate guanxi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.135***</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.052</td>
<td>0.104</td>
<td>0.096</td>
<td>0.126</td>
<td>0.144</td>
</tr>
<tr>
<td>( \Delta R^2 )</td>
<td>0.013*</td>
<td>0.053***</td>
<td>0.070***</td>
<td>0.030***</td>
<td>0.018***</td>
</tr>
</tbody>
</table>

Notes: \( n = 380 \). The regression coefficient is standardized regression coefficient. *\( p < 0.05 \); **\( p < 0.001 \).

\( (\beta = 0.048, p > 0.05) \). Therefore, felt obligation for constructive change plays a fully mediating role between responsible leadership and OCBE (Baron and Kenny, 1986). \( H3 \) is initially verified. In addition, it can be seen from Model 5 that supervisor-subordinate guanxi interacted significantly with responsible leadership to influence felt obligation for constructive change \( (\beta = 0.135, p < 0.001) \), verifying \( H4 \). To more accurately test the mediating role of felt obligation for constructive change between responsible leadership and OCBE, this paper uses the bootstrapping method to test the indirect effect hypothesis (Mackinnon et al., 2004). The results of 2000 bootstrapping samples show that the indirect effect of responsible leadership on OCBE via felt obligation for constructive change is 0.089, and the mediating effect of the indirect path does not include 0 [0.044, 0.159] in the 95% confidence interval (CI). Therefore, \( H3 \) is verified.

In terms of the moderating effect test, the moderating effect is illustrated in Figure 2. From Figure 2, we can see that when supervisor-subordinate guanxi is high (1 standard deviation above the mean), responsible leadership has a significant impact on the felt obligation for constructive change \( (\beta = 0.440, p < 0.001) \). When the relationship between
supervisor-subordinate guanxi is low (1 standard deviation below the mean), responsible leadership has no significant impact on the felt obligation for constructive change ($\beta = 0.042$, $p > 0.05$), and $H4$ is verified.

$H5$ proposes a moderated-mediation model. This paper uses the PROCESS macro to conduct the analysis (Hayes, 2013). Table V shows that the indirect effect of responsible leadership on OCBE via felt obligation for constructive change is relatively high for employees with high supervisor-subordinate guanxi ($B = 0.1083$, SE = 0.0286, 95% bias-corrected CI [0.0535, 0.1705], excluding zero). For employees with low supervisor-subordinate guanxi, the indirect effect of responsible leaders on OCBE through felt obligation for constructive change is relatively low ($B = 0.0365$, SE = 0.0286, 95% bias-corrected CI [−0.0108, 0.1008], including zero). The difference in the indirect effect between the two levels is 0.0718, and the CI is [0.0020, 0.0993], excluding zero, which indicates that the difference is significant. Therefore, supervisor-subordinate guanxi moderates the indirect influence of responsible leaders on OCBE through felt obligation for constructive change. $H5$ is supported.

5. Conclusion and discussion

5.1 Conclusion

Through the analysis of data on 380 employees, this paper mainly draws the following conclusions. Responsible leadership has a significantly positive impact on OCBE after controlling for gender, age, education and organizational tenure. In addition, felt obligation for constructive change completely mediates the relationship between responsible leadership and OCBE. The supervisor-subordinate guanxi positively moderates the relationship between responsible leadership and felt obligation for constructive change. In other words, the relationship between responsible leadership and felt obligation for constructive change will be strengthened under high supervisor-subordinate guanxi. In addition, supervisor-subordinate guanxi moderates the indirect effect of responsible leadership on OCBE via felt obligation for constructive change. For employees with a high level of supervisor-subordinate guanxi, responsible leadership will promote the felt obligation for constructive change and then improve their OCBEs; in contrast, it will be weaker for employees with low-level supervisor-subordinate guanxi.

5.2 Theoretical significance

OCBE captures pro-environmental behavior in the workplace. Its theoretical significance is mainly in its deep excavation of employee behavior, its support for the importance of human resources research, and the challenges it presents to traditional theoretical perspectives (Zhang and Liu, 2016). The research results show that felt obligation for constructive change completely mediates the impact of responsible leadership on OCBE. Responsible leadership has an important impact on employees’ attitudes and behaviors as an important organizational context, but this effect is achieved through felt obligation for constructive change. Cognitive evaluation theory believes that the influence of situational factors on individuals often goes through a process from stimulation, to individual cognitive evaluation and to response. The effectiveness of responsible leadership lies in felt obligation for constructive change. When responsible leadership stimulates employees by generating a

<table>
<thead>
<tr>
<th>Grouping statistics</th>
<th>Indirect effect</th>
<th>95% bias-corrected confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low supervisor-subordinate guanxi (−1 SD)</td>
<td>0.0365</td>
<td>[−0.0108, 0.1008]</td>
</tr>
<tr>
<td>High supervisor-subordinate guanxi (+1 SD)</td>
<td>0.1083</td>
<td>[0.0535, 0.1705]</td>
</tr>
<tr>
<td>Intergroup differences</td>
<td>0.0718</td>
<td>[0.0020, 0.0993]</td>
</tr>
</tbody>
</table>
A high sense of constructive change, employees are more likely to engage in OCBE. This study provides evidence for cognitive evaluation theory.

Although we found that the effects of responsible leadership and OCBE are transmitted through the mediating variable of felt obligation for constructive change, this does not reveal how responsible leadership influences felt obligation for constructive change in different situations. Therefore, we introduce supervisor-subordinate guanxi as a moderator, partly because in the Chinese organization, guanxi between the superior and the subordinate is widespread. This study found that the interaction between responsible leadership and supervisor-subordinate guanxi affects the mediator of employees’ felt obligation for constructive change. Employees with a high level of supervisor-subordinate guanxi are more likely to imitate and learn from responsible leaders, resulting in higher felt obligation for constructive change. Therefore, this study further demonstrated the importance of establishing high-quality supervisor-subordinate guanxi for responsible leaders and subordinates in China.

5.3 Managerial implications
To address social, ecological and environmental issues, enterprises should take the path of sustainable development and assume social responsibility. Leaders and employees are obviously the most effective practitioners of this concept. The conclusions of this study have the following management implications. First, the organization should actively implement responsible leadership to enhance employees’ felt obligation for constructive change, thereby stimulating employees to engage in OCBEs. At the same time, in the management practice of the organization, the role of responsible leadership should be strengthened in terms of leadership development and employee training and promotion. Second, leadership behavior, as an organizational context, is a “hard” aspect of the organization, while good guanxi between leaders and subordinates is “softer.” High-quality supervisor-subordinate guanxi helps to promote the effectiveness of responsible leadership, and the effective use of supervisor-subordinate guanxi is of great significance in the management of Chinese organizations.

5.4 Research limitations and future prospects
First, this study used a responsible leadership scale developed in a foreign context. Although the scale has been verified by relevant research, the conceptual connotation, characteristics and structure of responsible leadership in the context of Chinese culture need to be further explored. Future research can focus on the cultural roots, theoretical development and scale development of responsible leadership in the Chinese context. Second, although this study incorporates the context variable of supervisor-subordinate guanxi to examine the relationship between responsible leadership and OCBE, variables such as employees’ values and organizational climate may also have an important impact on this relationship. Future research can consider controlling these variables. Finally, the data in this study are mainly from the self-reports of employees, which inevitably leads to homogenous variance. Future research can use a combination of employee self-reporting and leadership reporting in data collection or can explore whether there is a difference between the two collection methods.

References


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