ORIGINAL RESEARCH

# Enhancing Organizational Citizenship Behaviors for the Environment: Integrating Social Identity and Social Exchange Perspectives

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**Purpose:** Based on social identity theory and social exchange theory, this study tests the influence of green organizational identity, exchange ideology and perceived organizational support toward the environment on organizational citizenship behaviors for the environment.

**Methods:** This study conducted a three-wave survey. The data was collected from 526 employees (95% response rate) across three organizations. Structural equation modeling based on AMOS and hierarchical regression analysis based on Hayes' PROCESS on SPSS were applied to test all hypotheses.

**Results:** Perceived organizational support towards the environment had a positive influence on organizational citizenship behaviors for the environment, and green organizational identity played a partial mediating role in this relationship. In addition, exchange ideology moderated the relationship between perceived organizational support towards the environment and green organizational identity, and such that this relationship was strengthened as a result of a high level of exchange ideology.

**Contribution:** Overall, these findings contribute to the understanding of the integration of social identity theory and social exchange theory and the ways in which both theories influence organizational citizenship behaviors for the environment.

**Keywords:** green organizational identity, exchange ideology, perceived organizational support toward the environment, organizational citizenship behaviors for the environment

## Introduction

Ecological concerns are increasingly moralized in the context of organizational operations, a situation that drives organizations to adopt environmental management systems.[1] Although organizations tend to focus mainly on implementing formal management systems, the implementation of such systems is not enough, and the voluntary participation of employees is also necessary.[2] Ones and Dilchert[3] indicate that more than 70% of green behaviors performed by employees are not limited to their job duties. The implementation of environmental projects requires interaction and cooperation among employees.[4] As such, effective environmental management must transform formal organizational rules into decentralized, individual attitudes toward organizational citizenship behaviors for the environment (OCBEs).[5] The term OCBEs refers to discretionary behaviors that produce benefits for organizational environmental management but are not defined explicitly in terms of formal management systems.[6]

On this basis, an increasing number of studies explore the ways in which OCBEs are driven by various antecedents, such as corporate policy, leadership, environmental value, and social norms.[2,7–15] Although such studies advance the understanding of the significance of OCBEs, the task of investigating OCBEs remains far from complete. It is necessary to take into consideration the roles played by social exchange theory and social identity theory, which have traditionally

been identified as theoretical bases used to explain voluntary environmental activities and organizational citizenship behaviors (OCBs).[16] Some studies[17,18] indicate that social identity and social exchange relating to the environment have stronger effects on environmentally oriented actions than the effect of attitudes because both exchange and identity "control" the level of consistency between individuals' attitudes and behaviors as a means of maintaining continuity among individuals' experiences.

Although some studies explore the importance of these two theories in the context of OCBs, these studies remain limited to certain perspectives. First, they tend to focus mainly on OCBs rather than OCBEs. The difference between these two constructs is that OCBs focus on helping the organization (OCBO) and improving interpersonal relationships within the organization (OCBI), while OCBEs relate to behaviors targeted at the environment.[19] Therefore, the antecedents of OCBs may not continue to have the same effects on OCBEs. Second, although a lot of studies has been done to test directly the effect of social identity perspectives and social identity perspectives on OCBs, only few studies[8] include both theoretical perspectives in an integrated model. To fill this gap in the research, the present study integrated social identity theory and social exchange theory within an overarching framework by studying the mediating effect of green organizational identity (GOI) on the relationship between perceived organizational support towards the environment (POSE) and OCBEs. In addition to testing the above relationship, the study investigated exchange ideology (EI) as the boundary condition of the mediating effect of GOI on the relationship between POSE and OCBEs (Figure 1).

The present study contributes to the current literature in two ways. First, it not only reveals compelling evidence relating the social identity and social exchange antecedents of OCBEs but also deepens the theoretical integration of social identity and social exchange in the field of environmental perspectives. Although both theories have been used extensively to explain OCBs, they have developed for the most part separately[8] because they have different theoretical implications. In particular, social exchange perspectives highlight the fact that employees and their organizations are separate entities, while the social identity perspective implies that they are unified.[20] Recent studies have suggested that these two positions should be integrated with respect to the predication of OCBs[21] because employees and their organizations can be linked psychologically and the assumption that they are unified with respect to the social identity domain is not always understood. The present study responds to the call to break down the barrier between the two perspectives by building connections between GOI, POSE, and OCBEs. It is reasonable to do that because these factors have similar implications with respect to cognitive perceptions relating to the interdependence of individual-environment outcomes and collective-environment outcomes. They can also provide a sense of emotional connection with the collective environment.[22]
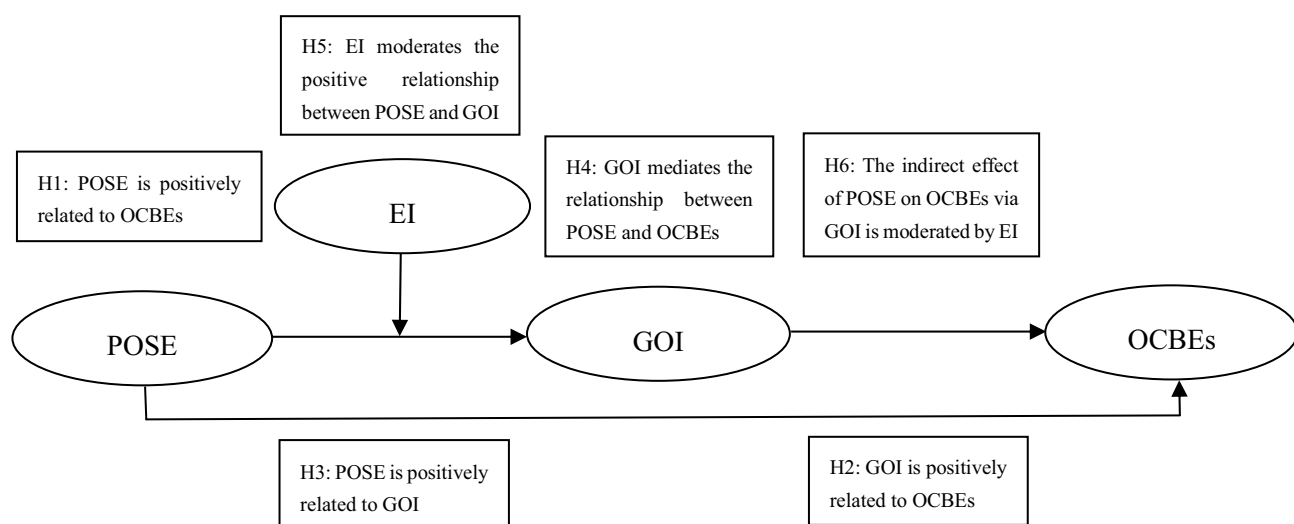


**Figure 1** Theoretical model.
**Abbreviations**: POSE, perceived organizational support towards the environment; GOI, green organizational identity; OCBEs, organizational citizenship behaviors for the environment; EI, exchange ideology.

Second, the present study explores how individuals' sensitivity towards exchange relationships moderates the theoretical perspectives of social identity and social exchange. Eisenberger et al[23] suggest that employees with a similar identity do not all adhere to the norm of exchange, and thus may differ in the extent to which they reciprocate. Individual differences in employees' sensitivity to exchange relationships are referred to as exchange ideology (EI), which is defined in terms of the strength of individuals' perception of the ways their organizations treat them determines their work effort.[23] The construct of EI has been used largely to investigate its moderating role in the relationship between various attitudes and relevant behaviours,[24–27] but rarely to explore the relationship between social identity and social exchange perspectives. The present study enriches existing knowledge of the conditions under which POSE can effectively promote employees' GOI and, in turn, their levels of engagement in OCBEs.

# Literature Review and Hypotheses
## Organizational Citizenship Behaviors for the Environment

Developed in accordance with Organ's[28] original definition of organizational citizenship behaviors, organizational citizenship behaviors for the environment are described as behaviors on the part of employees that are discretionary, that are not explicitly mandated by the organization, and that benefit the environment.[8,29] Specifically, these behaviors develop a sense of "citizenship", which involves the investment of time and energy in organization work beyond the level that is formally required.[14]

Ones and Dilchert[3] describe the basic attributes of OCBEs as follows: (1) the prevention of harm, such as by avoiding pollution, (2) conservation, such as by recycling, (3) contributions to sustainability, such as by reducing the personal and organizational consumption of resources, (4) influence over others, such as by providing work suggestions in an environmentally friendly way and (5) the taking of initiative, such as by initiating plans and policies. Based on these attributes, Boiral and Paillé[6] define OCBEs further in terms of three categories: eco-initiatives, eco-helping, and eco-civic engagements. Eco-initiatives refer to individuals being willing to participate in environmental "welcoming" behaviors. Eco-helping is defined as individuals within the organization helping each other to solve environmental issues. Eco-civic engagements refer to individuals voluntarily involving themselves in organizational green activities.[29]

## Perceived Organizational Support Toward the Environment and Organizational Citizenship Behaviors for the Environment

Perceived organizational support towards the environment applies the social exchange perspective to the environmental domain and refers to individuals' perceptions of the degree to which the organization evaluates their contributions to the environment.[19] POSE suggests organizational support for environmental behaviors and a high appraisal of employees' contributions to the environment.[19] Based on social exchange theory, it reflects generalized exchanges in which care, support, and indirect reciprocation are shared amongst employees of the same organization.[30]

Similarly, organizational citizenship behaviors are also in alignment with the implications of generalized exchange because both of these factors focus on indirect reciprocation and because the reciprocation received by employees is varied, unspecified and lack of time-bound.[30] As such, it is reasonable to expect that the quality of POSE can provide significant motivation to encourage employees to exhibit OCBEs, which are a specific kind of OCB targeted at the environment.

The important motivation stemming from POSE pertains to a strong sense of connection among employees and their organizations.[19,29] Specifically, the sense of being valued, environmentally friendly members of the organization that can be achieved via a high level of POSE suggests that employees are likely to develop a greater perception of being connection to the organization's goals for the environment.[9] Based on the nation of reciprocation, employees tend to incorporate the organizational value of environmental sustainability into their own self-concept, which can motivate them to participate in organizational-oriented behaviors directed toward the environment, such as OCBEs.[12,25] Sluss et al[31] also support this idea and suggest that organizational support confirms the employees' value and increases the perceived attractiveness of the organization. In contrast, employees with a low level of POSE receive less praise regarding their environmental protection activities from the organization. Such employees are less likely to engage in these environmentally oriented behaviors because they do not view the organization as a significant part of themselves in accordance with the rule of reciprocation. Based on these dynamics,

a key contention of social exchange theory is that POSE fosters employees' motivation to engage in OCBEs. This study therefore hypothesizes that the following:

Hypothesis 1: POSE is positively related to OCBEs.

## Green Organizational Identity and Organizational Citizenship Behaviors for the Environment

Green organizational identity, which is an interpretive scheme pertaining to an environmental orientation constructed by members who act collectively to confer meaning on their behaviours,[32] applies the social identity perspective to the environmental domain. It helps employees to make sense of what they do toward environment related to their understanding of what their organization is. GOI can affect an organization's decisions and behaviors and employees' attitudes and behaviors.[10]

As a powerful collective cognitive framework, organizational identity interpret employees' experience toward environment,[9] and determines their perceptions of and behaviors toward the environment.[32,33] When environmental awareness turn to be an important part of organizational identity, environmental information (eg, environmental values and goals) is provided to members of the organization, which influences the ways in which employees evaluate the relationship between the environment and the organization as well as their resulting behaviors.[9] In consequence, individuals tend to define themselves as members of an organization that is environmentally responsible and to exhibit a high level of identification with the organization. According to social identity theory, individuals tend to exhibit behaviors that are in line with their organizational identification.[34] Therefore, individuals with high levels of GOI are more concerned with environmental values and goals and tend to exhibit more voluntary behaviors relating to their organization, such as OCBEs. This study therefore hypothesizes the following:

Hypothesis 2: GOI is positively related to OCBEs.

## The Mediating Role of Green Organizational Identity on the Relationship Between Perceived Organizational Support Toward the Environment and Organizational Citizenship Behaviors for the Environment

Based on social identity theory, the construction of employees' social identity in the context of organizational membership is dependent on how employees feel about the organization and the way in which the organization treats them.[35] The criteria for adjudicating between good and bad treatment rely on whether the organization enhances employees' self-esteem,[36] a factor which is also related to the quality of POSE. For environmentally minded individuals, POSE may inform that organizational value and allow employees to appreciate their environmental values and goals and their environmental-friendly actions.[29] Such treatment is likely to cause these employees to believe that their organization is an appropriate place to realize their self-esteem.[9] Consistent with the claims of social identity theory, individuals whose perceptions function at the organizational level assess their self-esteem in terms of the extent to which they are able to assimilate themselves into their organization and the extent to which that organization is able to be successful.[37] Therefore, these employees may respect their organization and trust it to fulfill its exchange obligations;[38] accordingly, they may incorporate green organizational membership into their social identity.[39]

This process is also in line with the top-down process that underlies the development of organizational identity.[21] Specifically, employees who feel that their environmentally oriented goals are consistent with those of the organization and who perceive a sense of person-organization fit tend to develop stronger organizational identification.[40,41] They thus exhibit a stronger green organizational identity. This study therefore hypothesizes the following:

Hypothesis 3: POSE is positively related to GOI.

In considering the effects of POSE and GOI on OCBEs and the discussions conducted above concerning the relationship between GOI and OCBEs, this study proposes that GOI serves as an integral mediating mechanism between POSE and OCBEs. Specifically, adopting POSE by acknowledging employees' green contributions causes employees to perform their organizational work in a more environmentally valuable manner[29] and thus enhances their GOI. Given an

elevated level of GOI, members are more motivated to show OCBEs, especially when their green organization identity is improved by way of a generalized exchange relationship. This study therefore hypothesizes the following:

Hypothesis 4: GOI mediates the relationship between POSE and OCBEs.

## The Moderating Role of Exchange Ideology on the Relationship Between Perceived Organizational Support Toward the Environment and Green Organizational Identity

Based on the assumption of the integration of social identity theory and social exchange theory, it is possible to assume the positive influence of POSE on GOI, but it is unclear whether the impact of POSE on GOI can rely on social exchange beliefs (eg, exchange ideology) that have been identified to moderate the effect of social exchange on various variables.[24,25] Eisenberger et al[23] assert that it is impossible for individuals to develop in similar ways with respect to the norm of reciprocity, and individuals often differ in the manner of their reciprocation. These differences can be defined as exchange ideology (EI). EI refers to individual differences with respect to the way in which the value of reciprocity is endorsed[38] and the ways in which individuals perform in response to organizational treatment. In other words, the obligation to provide reciprocation to the organization only arises when the organization provides sufficient support to employees.[42,43]

According to the assumptions of EI, POSE is a more salient motivation related to GOI for employees who endorse the norm of reciprocity more strongly and who appraise the support that they receive from their organization more highly. Employees with a higher level of EI tend to take actions that are consistent with the predication of social exchange relationships.[44,45] In other words, when such employees perceive environmental support, care and encouragement from the focal organization, they are highly likely to identify with the organization and develop organizational identity with respect to the environment, and they prefer to reciprocate this support and care in the context of the environment[23] because they believe that continuous contributions to the environment can help ensure that they will receive further support and respect from their organization in the future.[21,46] However, when employees with a higher level of EI receive limited environmental care and support from their organization (ie, when they have a lower level of POSE), they may be less likely to reciprocate with respect to the environment and are unlikely to develop GOI.

In contrast, employees with a lower level of EI prefer to pay the same amount of effort regardless of POSE.[42] In other words, even when such employees receive more environmental support and care from their organization, they are less likely to develop GOI because they do not experience the obligation to reciprocate the organization's actions. Likewise, they are less sensitive to lower levels of POSE. This study therefore hypothesizes that the following:

Hypothesis 5: EI moderates the positive relationship between POSE and GOI such that this relationship is stronger when the level of EI is higher.

According to the assumption that EI interacts with POSE to influence GOI and taking into account the mediation of GOI with respect to the relationship between POSE and OCBEs, it can be proposed that the strength of the mediating mechanism is moderated by EI. Specifically, employees with a higher level of EI may respond to POSE by strengthening GOI. Such employees tend to identify with their organization more and to develop their organizational identity toward the environment. Consequently, this process leads to the development of OCBEs. Conversely, employees with a lower level of EI are likely to experience a weaker relationship between POSE and GOI. They are less likely to develop GOI through POSE and thus to develop OCBEs. This situation leads us to the final hypothesis:

Hypothesis 6: The indirect effect of POSE on OCBEs via GOI is moderated by EI such that the mediated association is stronger when EI is higher.

## Methods
### Sample and Procedure
Questionnaires were distributed to 556 employees across three manufacturing organizations in the northern part of China. Following Islam et al,[13,47] data were collected from three organizations for few reasons. Firstly, these organizations provide

permissions to collect data. Secondly, employees have all engaged in environmental activities or protection. Before distributing questionnaires to the target population, the authors conducted a questionnaire pre-test involving 40 participants in target organizations to avoid ambiguities in the instruments. In addition, a cover story with explanations was distributed. This included statements such as: "Your opinions are important to us" and "There are no right or wrong answers". The questionnaires were then distributed along with an explanation of the purpose of the study and a guarantee of strict confidentiality.

Completed questionnaires were returned by 526 employees (95% response rate). Subordinates in each group worked under one leader. Both subordinates and leaders held jobs in the fields of engineering, administration, marketing and production. Respondents mean age was ranging between 22 and 60. The average work experience was 5.64 years. Thirty-three percent of respondents were female and sixty-seven percent of them were male. Honest answers were facilitated by guaranteeing the anonymity of employees by providing them with a stamped envelope addressed to the researcher. In accordance with the recommendations of Podsakoff,[48] the present study controlled for common method bias by measuring the dependent variable (OCBEs), independent variables (GOI and POSE) and moderating variable (EI) from different sources. In particular, this study employed self-rating to measure POSE. EI was measured by self-rating at time T1, and employees' OCBEs were rated by their leaders at times T2-4 weeks later than time T1. Additionally, GOI was measured by employees' rating at time T3- 4 weeks later than time T2. Leaders and subordinates completed their questionnaires separately.

## Measures
Independent experts translated the original English instruments into Chinese with a rigorous method of translation and back-translation to ensure the accurate of translation and pre-test to solve conceptual equivalence.

## Green Organizational Identity
Following Chen (2011),[32] green organizational identity was captured on a 6 items with seven-point Likert scale. The scale was further validated by Chang,[10] with a reliability of 0.93. The present study reported a value of 0.84. A sample item was "I have a sense of pride in the company's environmental goals and mission".

## Perceived Organizational Support Toward the Environment
Perceived organizational support toward the environment was measured by 5 items with five-point Likert scale proposed by Lamm et al.[19] The scale was further validated by Bhatnagar and Aggarwal[29] with a reliability of 0.71. The coefficient alpha in the present study was 0.80. A sample item was "My actions toward sustainability are appreciated by my organization".

## Organizational Citizenship Behaviors for the Environment
Organizational citizenship behaviors for the environment entailed a 10-item with seven-point scale from Boiral and paillé.[6] The coefficient alpha for the construct in this study was 0.87. The study applied a leader rating approach measuring this variable to avoid the trap of using self-reports that would inflate correlations between predictor variables and OCBEs due to common-method bias. A sample item was "The employee undertakes environmental actions that contribute positively to the image of the organization".

## Exchange Ideology
Exchange ideology was measured by 5-item with seven-point Likert scale adopted from Scott and Colquitt.[42] The scale was further validated by He et al[21] with a reliability of 0.77. The present study reported 0.82 as its reliability value. A sample item was "I should not care about the organization unless the organization shows that it cares about me".

## Control Variables
Past studies suggested potential relationship between demographic variables and pro-environmental behaviors in the organization.[2] Therefore, This study controlled for age, gender and education background.

# Results

The present study applied several statistical procedures. The model's fitness was tested by using structural equation modeling (SEM) with AMOS, which is particularly useful for examining model fit values.[13] The hypotheses were tested using hierarchical regression based on Hayes' PROCESS on SPSS. This was chosen for several reasons. First, it estimates all path coefficients, $R^2$, adjusted $R^2$, $t$ values, and $p$ values, amongst others. Some of these cannot be supplied by SEM.[49] In addition, PROCESS is far easier to use for regression than SEM.[49] Second, the present authors wanted to use ordinary least squares to measure the relationship between variables. Third, the popular procedure for testing theoretical models regarding mediation and moderation focuses on the model as a whole (as PROCESS does) rather than components of the model (as SEM does).[49]

Before testing the hypotheses, this study incorporated each item of all scales into a measurement model. This four-factor model fitted the data well ($x^2$ = 755.98; df = 293; *CFI* = 0.92; *TLI* = 0.91; *RMSEA* = 0.05; *standardized RMR* = 0.05) rather than other models (Table 1). The results satisfied the standard criteria of confirmatory factor analysis ($\chi^2$/df ≤ 3.0; CFI ≥ 0.9; TLI ≥ 0.9; RMSEA ≤ 0.08; SRMR ≤ 0.10).[13] This study tested common method bias through Harman's single-factor model. The results shown that a single factor contributed to 29.04% of the variance, which was less than the criteria of 50%.[14] After that, this study carried out a hierarchical regression analysis to examine the relationships between variables.

Table 2 shows the means, standard deviations and correlations among variables. The primary analysis focuses on the relationship between POSE and OCBEs. In Table 3, the results indicate that both variables are significantly and positively related after controlling for age, gender and education level ($\beta$= 0.34; $p<0.001$; $\Delta R^2$= 0.05, $\Delta f$= 28.07, $p<0.001$). In other words, a higher POSE score leads to a higher level of OCBEs. This result supports Hypothesis 1. This study found employees' GOI to be positively and significantly linked to their OCBEs ($\beta$= 0.26; $p<0.001$; $\Delta R^2$= 0.10, $\Delta f$= 59.00, $p<0.001$), as predicted in Hypothesis 2 (Table 3). As suggested in Table 3, the relationship between GOI and POSE also reveals a positive and significant relationship ($\beta$= 0.55; $p<0.001$; $\Delta R^2$= 0.09, $\Delta f$= 48.14, $p<0.001$). Hypothesis 3 is therefore also supported.

A direct relationship between an independent and dependent variable is not always necessary to postulate a mediation effect.[50] Thus, based on the PROCESS macro in SPSS software, This study further examined the mediation effect of GOI on POSE and OCBEs after controlling for age, gender and educational background. Table 3 shows that GOI mediates the relationship between these two variables. Therefore, Hypothesis 4 is supported.

**Table 1** Comparisons of Measurement Model

| | $X^2$ | df | CFI | TLI | RMSEA | SRMR |
|---|---|---|---|---|---|---|
| Four factors: POSE, EI, GOI, OCBEs | 755.98 | 293 | 0.92 | 0.91 | 0.05 | 0.05 |
| Alternative three-factor measurement model | | | | | | |
| POSE+EI, GOI, OCBEs | 1201.90 | 296 | 0.84 | 0.83 | 0.08 | 0.07 |
| POSE+GOI, EI, OCBEs | 1447.65 | 296 | 0.80 | 0.78 | 0.09 | 0.09 |
| POSE+OCBEs, EI, GOI | 1477.19 | 296 | 0.80 | 0.78 | 0.09 | 0.10 |
| POSE, EI+GOI, OCBEs | 1501.13 | 296 | 0.79 | 0.77 | 0.09 | 0.08 |
| POSE, EI+OCBEs, GOI | 1352.14 | 296 | 0.82 | 0.80 | 0.08 | 0.08 |
| POSE, EI, GOI+OCBEs | 1850.27 | 296 | 0.73 | 0.70 | 0.10 | 0.10 |
| Alternative two-factor measurement model | | | | | | |
| POSE+EI+GOI, OCBEs | 1978.23 | 298 | 0.71 | 0.68 | 0.10 | 0.09 |
| POSE+EI+OCBEs, GOI | 1971.55 | 298 | 0.71 | 0.68 | 0.10 | 0.10 |
| POSE, EI+OCBEs+GOI | 2347.22 | 298 | 0.65 | 0.61 | 0.11 | 0.11 |
| POSE+GOI+OCBEs, EI | 2533.78 | 298 | 0.61 | 0.58 | 0.12 | 0.12 |
| One factor: POSE+EI+GOI+OCBEs | 566.19 | 53 | 0.86 | 0.82 | 0.11 | 0.07 |

**Abbreviations**: POSE, perceived organizational support toward the environment; EI, exchange ideology; GOI, green organizational identity; OCBEs, organizational citizenship behaviors for the environment; df, degree of freedom; CFI, comparative fit index; TLI, Tucker-Lewis index; RMSEA, root mean square error of approximation; SRMR, standard root mean square residual.

**Table 2** Descriptive Statistics and Correlations

|           | Mean | SD   | 1      | 2      | 3      | 4 |
|-----------|------|------|--------|--------|--------|---|
| 1. POSE   | 4.15 | 0.51 |        |        |        |   |
| 2. EI     | 5.47 | 0.83 | 0.42** |        |        |   |
| 3. GOI    | 5.04 | 0.98 | 0.29** | 0.43** |        |   |
| 4. OCBEs  | 5.45 | 0.77 | 0.23** | 0.47** | 0.32** |   |

**Note**: **p< 0.01.
**Abbreviations**: POSE, perceived organizational support toward the environment; EI, exchange ideology; GOI, green organizational identity; OCBEs, organizational citizenship behaviors for the environment.

**Table 3** Hierarchical Regression Analyses with Perceived Organizational Support Toward the Environment, Green Organizational Identity and Organizational Citizenship Behaviors for the Environment

| Predictor Variable | OCBEs    | OCBEs    | GOI     |
|--------------------|----------|----------|---------|
| Age                | 0.00     | 0.00     | −0.01   |
| Gender             | −0.01    | 0.03     | −0.16   |
| Education level    | 0.01     | 0.04     | −0.09   |
| POSE               | 0.34***  |          | 0.55*** |
| GOI                |          | 0.26***  |         |
| $R^2$              | 0.05     | 0.10     | 0.10    |
| F                  | 7.34***  | 15.09*** | 13.70***|
| $\Delta R^2$       | 0.05     | 0.10     | 0.09    |
| $\Delta F$         | 28.07*** | 59.00*** | 48.14***|
| The mediation role of GOI on the relationship between POSE and OCBEs | | | |
| Variables | Coeff. | LLCI | ULCI |
| Total effect of POSE on OCBEs | 0.34 | 0.21 | 0.47 |
| Direct effect of POSE on OCBEs | 0.22 | 0.09 | 0.35 |
| Indirect effect of POSE on OCBEs (via GOI) | 0.12 | 0.07 | 0.19 |

**Notes**: ***P< 0.001; Δ adjusted.
**Abbreviations**: POSE, perceived organizational support toward the environment; GOI, green organizational identity; OCBEs, organizational citizenship behaviors for the environment; LLCI, lower level of confidence interval; ULCI, upper level of confidence interval.

Additionally, Hypothesis 5 pertained to the effect of the interaction of EI and POSE on GOI after controlling for age, gender and education level. The SPSS PROCESS macro was applied to conduct a hierarchical moderated regression analysis. As shown in Table 4, the interaction effect is significant ($\beta$=0.24, $p$<0.01). Next, a simple slope test was applied to evaluate the significance of the moderation effect. The results indicate that the simple slope for EI computed based on one standard deviation above the mean ($\beta$=0.47, $p$<0.001) and equal to the mean ($\beta$=0.27, $p$<0.001) were significant, but that the simple slope computed based on one standard deviation below the mean is non-significant ($\beta$=0.06, $p$>0.05). Therefore, the moderating influence of this interaction is statistically non-significant only when EI was low. Figure 2 shows that the relationship between POSE and GOI was more positive in the higher level of EI than the relationship in the lower level of EI. Hypothesis 5 is thus supported.

Moreover, this study used SPSS PROCESS macro to evaluate whether the indirect effect of POSE on OCBEs via GOI is based on levels of EI. Table 5 shown that, when the EI was high, the indirect effect of POSE on OCBEs was significant (effect=0.10, 95% boot CI= [0.06, 0.16]). However, when the EI was low, the indirect effect was not significant (effect=0.01, 95% boot CI= [−0.03, 0.07]). Therefore, hypothesis 6 is supported.

**Table 4** Hierarchical Regression Analyses with Exchange Ideology as the Moderating Variable

| Variables | Model I |
|---|---|
| EI | −0.54 |
| POSE | −1.06* |
| EI* POSE | 0.24** |
| Age | −0.01 |
| Gender | −0.21* |
| Education level | −0.08 |
| Conditional effect of POSE on GOI at values of the EI | |
| Low (−1 SD) | 0.06 |
| Mean | 0.27*** |
| High (+1 SD) | 0.47*** |

**Notes**: *p< 0.05. **p< 0.01. ***P< 0.001; Δ adjusted.
**Abbreviations**: POSE, perceived organizational support toward the environment; EI, exchange ideology; GOI, green organizational identity.

## Discussion

Based on social identity theory and social exchange theory, this study proposed a theoretical model to advance the understanding of the roles of POSE and GOI on OCBEs and to investigate whether EI can additionally affect this relationship as a moderating variable. In line with the assumptions, the findings demonstrated the partial mediation of GOI on the relationship between POSE and OCBEs. In addition, the positive influence of POSE on GOI and OCBEs (via GOI) was strengthened by a higher level of EI.

## Theoretical Implications

This study extends the literature concerning the connection between social identity theory and social exchange theory and contributes to the understanding of the predications of OCBEs from the perspectives of social exchange and social identity. First, this study offers further insight into the processes underlying employees' willingness to show OCBEs by
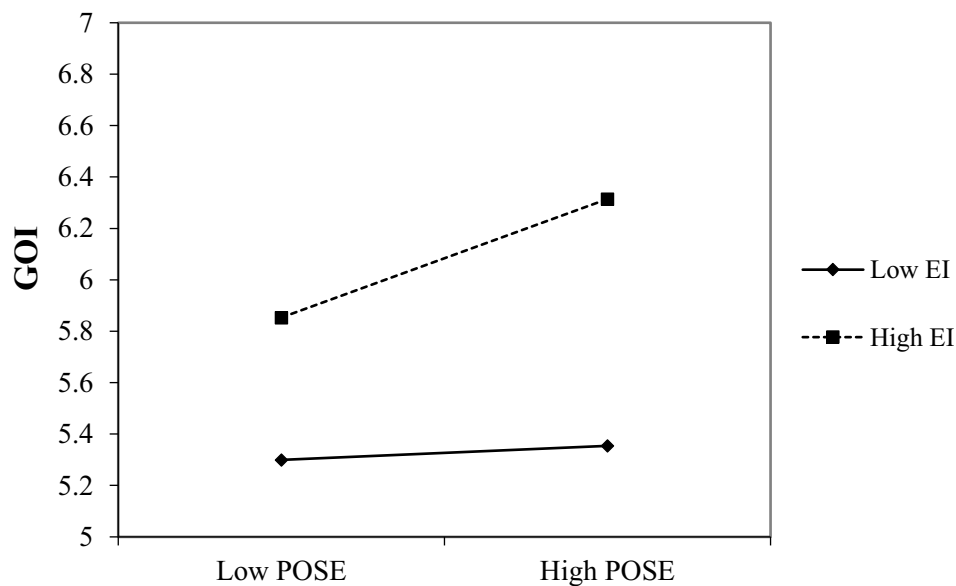


**Figure 2** Interaction between POSE and EI in GOI.
**Abbreviation**: POSE, perceived organizational support towards the environment; EI, exchange ideology; GOI, green organizational identity.

**Table 5** Exchange Ideology Moderates the Mediating Role of Green Organizational Identity on the Relationship Between Perceived Organizational Support Toward the Environment and Organizational Citizenship Behaviors for the Environment

| Moderator | Level | Conditional Indirect Effect | SE | LLCI | ULCI |
|---|---|---|---|---|---|
| EI | Low (−1 SD) | 0.01 | 0.03 | −0.03 | 0.07 |
| | Mean | 0.06 | 0.02 | 0.02 | 0.16 |
| | High (+1 SD) | 0.10 | 0.02 | 0.06 | 0.16 |

**Abbreviations**: EI, exchange ideology; LLCI, lower level of confidence interval; ULCI, upper level of confidence interval.

providing clear evidence of the role of POSE and GOI on OCBEs, and it confirms the long-standing belief that social exchange theory and social identity theory play an important role in explaining OCBs.[16] Specifically, both POSE and OCBEs focus on generalized exchange within organizations and indirect exchange between employees, while both GOI and OCBEs have similar implications with respect to cognitive perceptions that pertain to the interdependence of individual-environment outcomes and collective-environment outcomes.[22] These findings are in line with the assumptions of Bhatnagar and Aggarwal[29] that POSE motivates employees to engage in beneficial activities. They also reinforce Chang et al's conclusion[10] that GOI supports employees' green performance.

Second, by examining the mediating role of GOI on the relationship between POSE and OCBEs, the present study sheds light on the relationship between social identity theory and social exchange theory. These results show that GOI functions as a "bridge" through which POSE can motivate employees to exhibit OCBEs. Although the conventional view of social exchange theory holds that employees with a high level of POSE may exhibit OCBEs because they receive environmental care and support from the organization,[51,52] this study highlights the significance of the green social identity perspectives generated by POSE. Specifically, employees with a high level of POSE tend to engage frequently in OCBEs because the GOI produces environmental and affective contentment with their organization.[53] The findings support the integration of social identity theory and social exchange theory and answer calls to integrate perspectives from both approaches into a holistic and interrelated conceptual model to influence employees' voluntary behaviors (eg, OCBEs).[16] It also supports Liu et al's argument[9] that GOI is the core process underlying the positive effect of organizational environmental practice on individual behaviors.

Third, the present study has revealed that EI enhances the influence of POSE on OCBEs via GOI. The results represent a significant qualification of the social identity implications of social exchange theory. Previous studies have proposed that perceived organizational support may be related to social identification,[54] but few if any empirical studies test the interaction between these factors. This study responds to continuous calls from researchers to pay more attention to the factors moderating the relationship between the social exchange and social identity perspectives[53] and to deepen the understanding of the role played by EI in shaping employees' attitudes and actions.[21] These findings extend the line of ideas related to the social identity-related relationship (eg, GOI). Accordingly, the findings support Martha et al's[55] claim that EI has a conditional effect on employees' discrete, innovative, and spontaneous behaviors. They also complement previous findings suggesting that employees who are sensitive to perceived exchange relationships with respect to the organization and the environment are more likely to engage in supportive environmental behaviors on the part of the organization.[8,56–58]

## Practical Implications

This study provides a number of practical implications for management, which mainly depend on the roles of POSE, GOI, EI and OCBEs. First, the significant positive influence of POSE and GOI on OCBEs suggests that if organizations intend to higher employees' OCBEs, it makes more sense to invest in social identity perspectives or social exchange perspectives (or both)-highlighting the attractiveness of green organizational identity to their employees and valuing employees' environmental contributions to the environment. It is also important to note the role of the integration of the social identity and social exchange perspectives. This study shows that to encourage employees' awareness of the environment, organizations can benefit from interventions that are targeted at both investing in organizational support toward the environment and developing a green organizational identity. Furthermore, since the outcomes of GOI and POSE tend to be beneficial for OCBEs, an organization

must ensure that their environmental beliefs, activities, and mission are actively expressed in ways that are appealing to and understood by its employees. For instance, it might signal its support for OCBEs by providing employees with information related to the environmental effects of different actions.

Second, with regard to enhancing the influence of EI on the relationship between POSE and GOI, organizations must account for employees who are concerned about social exchange and the rule of reciprocity.[21] It is important that organizations understand why employees differ in terms of their responses to a given outcome or procedure when they experience the same treatment. Organizations must allocate resources accordingly to account for employees with different levels of EI. For example, organizations can provide support, care and respect for the environment to employees with a high level of exchange ideology because those employees will reciprocate this support.

## Limitations and Future Study

Despite the contributions, the present study faces several limitations. First, since the data pertaining to both POSE and EI were collected via self-report measurement at time T1, common method bias was a potential issue for this measurement. However, some studies assert that interactive effects are less likely to be influenced by common method bias.[53] It remains necessary to measure different variables at different time points. Second, although leaders' ratings of OCBEs may mitigate the influence of personal bias on self-report ratings, this approach may also lead to other forms of bias related to leaders' impression management.[59] This study suggests that future studies should use different sources of ratings to evaluate OCBEs. Third, this study theorizes the relationship between the social exchange and social identity perspectives in terms of motives related to self-esteem, but we did not test this variable empirically. Future studies can test the connection between POSE and GOI in the field of self-esteem empirically. Fourth, the data were collected from workers in the same industry, which may limit the generalizability of the findings. This research suggests that future studies should investigate whether the findings can be generalized by reference to data collected from workers in different industries or from different cultural backgrounds. Finally, this study has only considered individual-level moderators based on social exchange perspectives. Future studies might explore team-level moderators based on social identity perspectives—such as team cohesiveness—to elucidate the influence of POSE and GOI on OCBEs. Team cohesiveness is often considered as a team level variable and facilities a shared identity that encourages employees to support each other.[60] In other words, in teams with a high level of cohesiveness, employees prefer to identify with organizational environmental activities by exhibiting OCBEs as an identity cue in line with their organizational identity.

## Conclusion

This study shows that focusing on POSE and GOI can enhance the understanding of the integration between social identity theory and social exchange theory and the understanding of the antecedents of OCBEs. The present study confirms that GOI is a significant mechanism in the connection between POSE and OCBEs. Additionally, the relationship between GOI, POSE, and OCBEs is stronger amongst employees with a high level of EI. Overall, organizations should focus not only on environmental beliefs, actions, and mission but also individual differences in their perception of reciprocity.

## Data Sharing Statement

The datasets generated for this study are available on request to the corresponding author.

## Ethical Approval

The study protocol was approved by College of Economics and Management, Beijing University of Technology. The guidelines outlined in the Declaration of Helsinki were followed and written informed consent was obtained from all individual participants included in the study.

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# Disclosure

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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