



# The Antecedents and Consequences of Employee Organizational Citizenship Behavior towards the Environment: A Meta-Analysis

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**Abstract.** In order to explore the antecedents and consequences of employee organizational citizenship behavior towards the environment, this study was based on R software using the meta-analysis method to discuss. The results of the meta-analysis of 82 empirical studies with 128 effect sizes showed that: Employee variables (i.e., environmental values, organizational commitment, environmental commitment, perceived organizational support, psychological ownership and positive mood), leadership variables (i.e., positive leadership) and organizational variables (i.e., green human resource management, green training, green performance management, green rewards and corporate social responsibility) all have positive effects on employee organizational citizenship behavior towards the environment. And this behavior has a positive impact on employee environmental performance; Industry type moderates the positive relationship between positive leadership and OCBE.

**Keywords:** Organizational citizenship behavior towards the environment; Meta-analysis; Antecedent variables; Outcome variables

## 1 INTRODUCTION

Organizational citizenship behavior towards the environment (OCBE) refers to a kind of environmental behavior that employees take the initiative to make, which is not required or rewarded by the organization, but can improve the organization's environmental performance [1]. However, existing studies have differences. In the study on the antecedent factors of employees' OCBE, Pham[2] showed that green training is positively correlated with employees' OCBE. However, Kim[3] found that there was no significant relationship between them. Therefore, based on the meta-analysis method, this paper clarifies the relationship and differences between OCBE and its ante-cause and post-effect, and finds out moderating factors affecting the above relationship, including industry type, cultural differences, measurement tools and data collection

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methods.

## **2 LITERATURE REVIEW AND RESEARCH HYPOTHESIS**

### **2.1 The relationship between antecedent variables and OCBE**

#### **2.1.1 Individual antecedent variables**

Environmental values (EV) refer to an individual's perception of the importance of the environment. When the environmental values are at a higher level, employees will be converted into voluntary environmental protection behaviors.

H1a: EV have a positive impact on OCBE.

Organizational commitment (OC) refers to the employee's recognition of the values of the organization. When employees realize the negative consequences caused by their failure to implement the OCBE, they will carry out the OCBE.

H1b: OC has a positive impact on OCBE.

Environmental commitment (EC) is defined as employee commitment to environmental mission. When employees are committed to environmental issues, employees will change their behaviors and may exhibit OCBE.

H1c: EC has a positive impact on OCBE.

Perceived organizational support (POS) reflects the degree to which employees perceive that the organization appreciates the contributions of its employees. When employees feel supported by the organization, they will adopt OCBE in return.

H1d: POS has a positive impact on OCBE.

Positive emotions (PE) were defined as the degree to which employees were energetic on work. When employees are in a more positive emotion, they will have a strong sense of society, which helps employees to show OCBE.

H1e: PE have a positive impact on e OCBE.

Psychological ownership (PO) mainly refers to employees' psychological perception of target ownership. When employees have psychological ownership, they have a sense of responsibility and mission, so as to show more extra-role behaviors.

H1f: PO has a positive impact on OCBE.

#### **2.1.2 Leadership antecedent variable**

Positive leaders care about their subordinates. They promote the alignment of employee values with the organization. When employees perceive the leader's support, they will show more behaviors that are conducive to the organization.

H2: PL has a positive impact on OCBE.

#### **2.1.3 Organizational antecedent variables**

Green human resource management (GHRM) applies the green concept to the human resource management. When enterprises carry out GHRM, employees will feel the organization's support so that employees are active in environmental protection.

H3a: GHRM has a positive impact on OCBE.

Green training (GT) refers to an activity carried out by enterprises to improve

employee environmental protection knowledge[4]. Green performance management (GPM) refers to assessing employee participation in environmental actions. Green rewards (GR) refer to a company's reward system for employees who contribute to environmental management.

H3b: GT has a positive impact on OCBE.

H3c: GPMt has a positive impact on OCBE.

H3d: GR has a positive impact on OCBE.

Corporate social responsibility (CSR) is regarded as aiming to create value for the sustainability of organization. According to the self-determination theory, when the basic needs are met, they will be more proactive in engaging in behaviors.

H3e: CSR has a positive impact on OCBE.

## **2.2 The relationship between OCBE and environmental performance**

Employee environmental performance (EEP) refers to the level at which employees contribute to the environmental performance. OCBE enables employees to hold a responsible attitude towards the environment.

H4: OCBE has a positive impact on employees' environmental performance.

## **2.3 The role of moderating factors**

### **2.3.1 Industry type**

The types of industries included in the paper are divided into manufacturing (M) and service (S) industries. The environmental pollution seriously increase, so employees may exhibit more OCBE. For the service industry, its development lacks long-term protection measures.

H5: Industry type has a moderating effect on the relationship between PL and OCBE, that is, the positive effect of PL on OCBE is stronger in M than in S.

### **2.3.2 Cultural differences**

Power distance (PD) refers to the degree of members' acceptance of the uneven distribution of power[5]. Positive leaders stimulate enthusiasm for environment protection. Therefore, employees are more willing to engage in OCBE. Individualism/collectivism (I/C) refers to the extent to which the people of a country prefer to carry out activities as individuals/group members. When positive leaders set an example, employees will participate in green behaviors. Long/short term orientation (LTO/STO) refers to the degree to which members of a society accept delays in meeting needs.

H6a: PD strengthens the relationship between PL and OCBE.

H6b: I/C has a moderating effect on the relationship between PL and OCBE. Compared with I, the positive influence of PL on OCBE is stronger in C.

H6c: LTO/STO has a moderating effect on the relationship between PL and OCBE. Positive effect of PL on OCBE is stronger in the LTO than that of STO.

### 2.3.3 Measurement tool

The existing scales are divided into three-dimension scale and the single-dimension scale. The three-dimension scale (T) includes the scale developed by Boiral and Paille and by Robertson and Barling. The single-dimension scale (O) includes the scales developed by Lamm, Temminck and Erdogan.

H7: The measurement tool will moderate the relationship between antecedent variables and OCBE, that is, antecedent variables have a stronger relationship with OCBE when using T.

### 2.3.4 Data collection method

Cross-sectional data(C) means that the measurement of antecedent variables and OCBE is carried out at the same time, while longitudinal data at different times. By measuring different variables in the same study at different time points, the longitudinal study (L) can find the changes in individual psychology, attitude and behavior.

H8: The method of data collection will regulate the relationship between antecedent variables and OCBE. Compared with C, antecedent variables are more strongly correlated with OCBE when using L.

## 3 RESEARCH METHODS

### 3.1 Literature search and screening

CNKI database and Web of Science were used for literature search. The search terms used included "Organizational Citizenship Behavior towards the Environment" and "Green Organizational Citizenship Behavior". After screening, a total of 82 empirical literatures were finally obtained that met the inclusion of the meta-analysis.

### 3.2 Statistical analysis

The Hunter and Schmidt (2004) method and the installation package of metafor version R4.1.2 was adopted. Homogeneity test, publication bias test, effect size test and adjustment effect test are mainly carried out in this study.

## 4 RESEARCH RESULTS

### 4.1 Homogeneity test

The Q values of antecedent variable and the OCBE reached a statistically significant level ( $p < 0.001$ ), indicating the heterogeneity of each effect size; In this study,  $I^2$  values were all higher than 75% and  $H > 1.5$ , indicating high heterogeneity of each effect size.

## 4.2 Publication bias test

The Egger linear regression method shows the p-value is not significant except for CSR. Then we use scissor compensation method, the P-value was still significant ( $p < 0.05$ ), indicating that the combined effect size was not affected by publication bias<sup>[6]</sup>.

## 4.3 Main effect test

### 4.3.1 Test the relationship between OCBE behavior and its antecedent variables

The main effect test results is shown in Table 1 below. EV, OC, EC, POS, PE, PO, PL, GHRM, GT, GPM, GR and CSR show a significant positive correlation with OCBE ( $p < 0.05$ ). H1a~H1f, H2, H3a~H3e are supported.

**Table 1.** Effect values of antecedents and ocbe

Variables	k	N	r	95% CI	p
Environmental values	7	2166	0.52	[0.13;0.77]	0.02
Organizational commitment	5	1434	0.46	[0.07;0.73]	0.03
Environmental commitment	3	1658	0.49	[0.06;0.77]	0.04
Sense of organizational support	9	3853	0.39	[0.10;0.61]	0.001
Positive emotions	4	2762	0.71	[0.38;0.88]	0.01
Psychological ownership	4	1274	0.60	[0.15;0.84]	0.03
Active Leadership	44	16195	0.51	[0.42;0.59]	0.001
Green human resource management practices	10	4952	0.50	[0.33;0.64]	0.001
Green Training	9	2053	0.55	[0.38;0.69]	0.000
Green Performance Management	7	1550	0.46	[0.28;0.60]	0.001
Green Rewards	4	1085	0.45	[0.20;0.65]	0.01
Corporate Social Responsibility	7	2213	0.56	[0.43;0.66]	0.001

### 4.3.2 Test of the relationship between OCBE and its outcome variables

The test results are shown in Table 2. There is a significant positive correlation between OCBE and EEP. Hypothesis H4 is supported.

**Table 2.** Effect values of ocbe and outcome variables

Variables	k	N	r	95% CI	p
environmental performance	6	3066	0.33	[0.25;0.40]	0.001

## 4.4 Moderation effect test results

### 4.4.1 Meta-regression analysis

The meta-regression results show that the moderating effects of the three cultural dimensions on the relationship between PL and OCBE are not significant, H6a~H6c are not supported.

#### 4.4.2 Subgroup analysis

The moderating effect of industry type on the relationship between PL and OCBE is significant ( $QB=4.57$ ,  $p<0.05$ ). The relationship between PL and OCBE in manufacturing industry is stronger than that in service industry, hypothesis H5 is supported, hypothesis H7 and H8 were invalid.

## 5 DISCUSSION

### 5.1 Conclusions and theoretical contributions

The research results show that, personal variables, leadership variables and organizational variables are significantly positively correlated with OCBE, and it contributes to improving environment performance. Thirdly, industry type moderates the relationship between PL and OCBE, that is, the positive impact of positive leadership on OCBE is stronger in M than in S.

### 5.2 Practical implication

This paper discusses the practical significance to the organization. As for employees, they should establish and strengthen environmental values, and take the initiative to engage in OCBE. As for managers, they should develop a positive leadership style. In order to make OCBE play its expected role, employee should take the initiative to show environment-friendly behaviors. As for managers, they should improve employees' environmental awareness. As for enterprises, they should formulate the strategy of environmental objectives, and gradually decompose it to employees.

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