

# Examining the Factors that Influence Employee Green Behaviour in China Using Social Cognitive Theory: A Mediating Role of Green Self-identity

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**Abstract:** *In 2021, carbon emissions from China's logistics sector, including transportation, warehousing, postal and telecommunications services, as well as transportation equipment, constituted approximately 7.08% of the nation's total carbon emissions. Historically, the logistics industry has consistently ranked among the top four contributors to China's overall carbon footprint. Despite this significant impact, existing literature has paid limited attention to the green behavior of employees within the logistics sector. This study aims to address this gap by identifying key factors that influence green behavior among employees in China's logistics service provider industry. Specifically, the research explores how organizational goal clarity fosters employees' green self-identity, which, in turn, motivates their engagement in employee green behavior. Using questionnaire data collected from managers at JD.com and SF Express Group Co., Ltd. in Guangdong Province, China, this study empirically tests its hypotheses through statistical analyses conducted with SPSS and SmartPLS 4.0. Grounded in a theoretical framework that integrates environmental goal clarity and green self-identity, this research makes a novel contribution to understanding the antecedents of employees' green behavior. Moreover, it introduces green self-identity as a mediating variable linking environmental goal clarity to green behavior, a relationship that remains underexplored within the context of social cognitive theory. By examining this mediation from a novel perspective, the study advances theoretical insights and provides practical implications for fostering sustainability in the logistics sector.*

**Keywords:** Employee Green Behavior, Environmental Goal Clarity, Green Self-identity, Social Cognitive Theory

## 1. Introduction

Over the past 120 years, the global population has surged from approximately 1.5 billion in 1900 (Brown & Flavin, 1999) to 8.045 billion in 2023 (United Nations Population Fund., 2023). This rapid population growth has coincided with a rise in Earth's temperature by  $1.2 \pm 0.1$  °C since pre-industrial times (F. Song, Zhang, Ramanathan, & Leung, 2022). Global greenhouse gas emissions continue to increase annually, showing no signs of peaking (Lenaerts, Tagliapietra, & Wolff, 2022). As a result, mitigating carbon emissions and curbing global warming have emerged as urgent, shared challenges for humanity (Cheema, Afsar, Al-Ghazali, & Maqsoom, 2020; Nordhaus, 2006). The discourse on climate change has escalated

from recognizing it as a crisis to addressing it as a global emergency (Al Zaidi, Iyanna, Jabeen, & Mehmood, 2023).

The global emphasis on addressing climate change presents significant challenges to the sustainable development of freight and transportation systems (Liu, 2020). According to Log Research (2023), carbon dioxide emissions from electricity generation and transportation (including international fuel bunkers) increased by 261 million and 254 million metric tons, respectively, surpassing emission reductions achieved in the industrial and construction sectors globally. Sustainable logistics has become pivotal for fostering economic growth while mitigating adverse social and environmental impacts (Govindan, Kilic, Uyar, & Karaman, 2021; Upadhyay, Kumar, Kumar, & Alzaben, 2021). Against this backdrop, the International Transport Forum (2023) asserts that curbing climate change is unattainable without decarbonizing the transportation sector. The Decarbonizing Transport Initiative calls for nations to adopt more ambitious policies tailored to the decarbonization potential of different transportation subsectors, reverse rising CO<sub>2</sub> emissions, and promote transformative global climate actions within the transportation domain (International Transport Forum, 2023).

Undoubtedly, the escalating climate crisis and its cascading impacts necessitate coordinated behavioral shifts at individual, organizational, and societal levels (George, Howard-Grenville, Joshi, & Tihanyi, 2016). Employees' green behavior (EGB) not only shapes environmental quality but also profoundly affects organizational outcomes (e.g., environmental performance), leadership effectiveness, and employee well-being (e.g., job satisfaction) (Norton, Parker, Zacher, & Ashkanasy, 2015). Numerous studies have explored the relationship between EGB and organizational performance across industries and countries, including Thailand's hospitality sector (Y. J. Kim, Kim, Choi, & Phetvaroon, 2019), tourism services in South Korea and Vietnam (Luu, 2020), and diverse sectors in China, such as manufacturing, retail, e-commerce, and hospitality (Hou, Gai, & An, 2023). These findings underscore the critical role of employee PEB in implementing and sustaining organizational sustainability practices (Banwo & Du, 2019; K. Farooq & Yusliza, 2023; Zafar, Ho, Cheah, & Mohamed, 2022).

EGB can be regarded as a cornerstone of environmentally sustainable organizations (Tang, Ren, Wang, Li, & Zhang, 2023; Zacher, Rudolph, & Katz, 2023). Identifying factors that foster and transform such behaviors is particularly crucial for organizations such as logistics service providers (Mehrajunnisa, Jabeen, Faisal, & Mehmood, 2022; Pham, Tučková, & Chiappetta Jabbour, 2019; Unsworth, Davis, Russell, & Bretter, 2021). With the introduction of China's "dual carbon" strategy, green performance policies have been integrated into the development agenda of logistics organizations. These organizations must focus on setting ambitious environmental goals and selecting appropriate strategies to inspire EGB (Wengang, Fenglian, & Feng, 2023). However, if these goals are excessively challenging and employees lack the necessary strategies and resources to achieve them, not only are organizational expectations unmet, but negative outcomes may arise (Locke & Latham, 2006; Welsh, Baer, & Sessions, 2020). Employees familiar with environmental goals may experience reduced task conflicts, while those strongly aligned with organizational green values are more likely to engage in environmental protection efforts (Wengang et al., 2023), potentially stimulating more frequent pro-environmental actions (Peng, Chen, Zou, & Nie, 2020). Recently, Yanchun, Huimin, Jian, and Yiwen (2023) said that more than 30% of China's companies are currently lacking targeted goals and effective strategies to adopt and promote green development and practices within their business operations. It is essential to focus on how logistics organizations establish challenging green objectives and select specific implementers to motivate employees'

environmentally friendly behaviors (Wengang et al., 2023). Accordingly, this study examines the relationship between environmental goal clarity and EGB.

Moreover, self-identity has been shown to significantly predict behavior, often surpassing other factors outlined in the Theory of Planned Behavior, even when controlling for past behaviors (Cheng, Wu, Deng, & Li, 2022; Dean, Raats, & Shepherd, 2012; Jung & Bice, 2019; Whitmarsh & O'Neill, 2010). Building on this foundation, the present study posits that green self-identity serves as a critical construct for understanding and fostering employee green behavior (EGB), as it encapsulates the degree to which individuals perceive themselves as environmentally responsible actors (Van der Werff, Steg, & Keizer, 2013a; Whitmarsh & O'Neill, 2010).

This research introduces green self-identity as a mediating variable in the relationship between environmental goal clarity and EGB, a connection that has yet to be explored within the framework of social cognitive theory (SCT). By investigating this mediation from a novel perspective, the study aims to provide deeper insights into the proposed relationship. While prior research has established the association between pro-environmental goal clarity and EGB (e.g., Zhang, Wang, and Xu (2023) and D. Quan, L. Tian, and W. Qiu (2022), Peng et al. (2020)), limited studies have examined the linkage between environmental goal clarity and employee green self-identity. By addressing this gap, the findings of this research will contribute to the literature by elucidating the relationship between environmental goal clarity and employee green self-identity within the context of China's logistics sector.

## 2. Literature Review

### Theoretical Underpinning

Social cognitive theory (SCT) (Albert Bandura, 1999) proposes that human behavior is the result of the interaction between individual, social, and behavioral factors. SCT originated from Albert Bandura's social learning theory in the 1960s, which emphasizes the acquisition of specific behaviors through observation and reinforcement from others (Albert Bandura & Walters, 1977). Bandura later identified limitations in the basic behaviorist perspective and incorporated cognitive components into traditional behaviorist personality theory, leading to the development of the SCT in 1986 (Albert Bandura, 1986). This theory suggests that in addition to environmental factors, individual cognitive abilities and expectations of action outcomes directly influence behavior. There is a continuous interaction among individual cognition, environment, and behavior, forming a "triadic reciprocal causation". Personal factors include self-efficacy, self-cognitive, individual knowledge, goals, and experiences. outcome expectations in behavioral factors refer to individuals' anticipations of the possible results and feedback from performing a specific behavior, such as material rewards, sensory experiences, and psychological rewards; environmental factors encompass the social support or barriers that may influence individual behavior.

Albert Bandura (1999) introduced the SCT as a crucial tool for assessing human motivation. It emphasizes the ongoing interplay between personal factors, behavior, and the environment (Bandura, 1986). Based on the core principles of SCT, the behavior of individuals is influenced by the dynamic interplay between environmental, personal, and behavioral components. In the context of EGB, environmental factor includes environmental goal clarity. For example, when the organization provides employees with information on eco-friendly policies and related matters, the team outlines the environmental governance objectives to the employees, this may lead to positive green behavioral outcomes.

When considering the mediation mechanism, the present study examined green self-identity and the SCT (Albert Bandura, 1999). Green self-identity and personal characteristics play important roles in individual green behavior (Becerra, Carrete, & Arroyo, 2023; Siddiquei, Asmi, Asadullah, & Mir, 2021; W. Song, Deng, Zhang, Peng, & Jin, 2023). According to the interactive determinism of SCT, human behavior, individual factors, and external environmental factors interact in a dynamic and mutually influential manner. In this context, environmental goal clarity increases employees' green self-identity (self-cognitive), which in turn influences their green behavior. Green self-identity acts as a bridge between environmental influences (organizational and team green practices) and individual behaviors (green behavior), encapsulating the process of personal cognitive transformation, thus translating organizational and team green practices and their expectations into employee behavior. This interactive determinism supports the rationality of green self-identity as a key mediating variable connecting environmental goal clarity with EGB.

In conclusion, SCT provides a solid theoretical foundation for using the principles of interactive determinism, observational learning, and the interaction of self-efficacy and outcome expectations to establish green self-identity as a mediator variable between environmental goal clarity and EGB.

### **Employee Green Behavior**

Ones and Dilchert (2012) define employees' green behaviors as actions that "prevent environmental harm, conserve resources, contribute to sustainable work practices, influence others' sustainable behavior, or proactively engage in sustainability initiatives." Against the backdrop of China's strategic objectives of "carbon neutrality" and "carbon peaking" (S. Zhao, Dai, Zhao, & Song, 2022; X. Zhao, Ma, Chen, Shang, & Song, 2022), the primary aim of logistics enterprises is to reduce carbon emissions. The green behaviors of organizations and employees have become critical strategic components of sustainable environmental governance within China's logistics sector. Thus, task-related green behaviors and proactive green behaviors among employees have emerged as essential targets of organizational environmental management practices, as both are pivotal in achieving logistics sustainability. Drawing upon the definition provided by Ones and Dilchert (2012), this study conceptualizes environmental sustainability as a set of scalable actions and behaviors that employees engage in or facilitate, contributing to the environmental sustainability of logistics enterprises.

### **Environmental Goal Clarity**

According to Sawyer (1992), goal clarity refers to the degree to which individual work goals and responsibilities are effectively communicated. Employees with clear environmental goals are more likely to recognize that contributing to sustainability is both a personal responsibility and an organizational objective. This heightened awareness enables them to better understand their roles and expectations, reducing ambiguity in behavior, enhancing self-regulatory capacities, and motivating alignment with organizational environmental objectives. Consequently, employees are more likely to exhibit pro-environmental behaviors (Farrukh, Raza, & Rafiq, 2023; Peng et al., 2020; Dongmei Quan, Leyao Tian, & Wenqi Qiu, 2022).

Notably, while early research predominantly focused on individual goal setting, recent studies have shifted attention to team-level goal setting (Abrahamse & Matthies, 2018). When team members clearly understand collective goals, role expectations are communicated more effectively, fostering a shared perception of goal clarity (Hu & Liden, 2011). This clarity enables team members to better comprehend their tasks and responsibilities within the group. Within a pro-environmental strategic framework, Peng et al. (2020) defined environmental goal

clarity as “the extent to which team members as a whole perceive that pro-environmental goals are clearly communicated.” Farrukh et al. (2023) expanded this definition by introducing the element of “effectiveness,” describing environmental goal clarity as “the degree to which team members collectively think that pro-environmental goals are conveyed to them clearly and effectively.” Building on these definitions, this study adopts the conceptualization of environmental goal clarity proposed by Farrukh et al. (2023) and Peng et al. (2020). Accordingly, environmental goal clarity is defined as the extent to which logistics team members collectively perceive that pro-environmental goals are communicated to them both clearly and effectively.

### Green Self-identity

A growing body of research has begun exploring the role of self-identity in shaping responses to environmental behaviors, driven by increasing concerns about individual green behaviors (Chernev & Blair, 2015; Udall, de Groot, de Jong, & Shankar, 2020). Self-identity encompasses an individual's self-awareness and the adoption of a group label to distinguish oneself from other social groups (Pronin, 2008). Recently, this concept has been extended to environmental issues through the introduction of green self-identity, which pertains to the degree of identification individuals feel regarding environmental concerns (Mahasuweerachai & Suttikun, 2022). Van der Werff et al. (2013a) combined self-identity with environmental commitment, defining green self-identity as “the extent to which you see yourself as someone who behaves environmentally friendly.”

Green self-identity emphasizes how individuals define themselves in terms of environmental friendliness. It not only serves to differentiate individuals from others but also reinforces the values and behaviors associated with the social groups they identify with or aspire to join (Confente, Scarpi, & Russo, 2020; van Gils & Horton, 2019). Building on the perspective of Van der Werff et al. (2013a) and aligned with Becerra et al. (2023), this study defines green self-identity as the extent to which employees in logistics organizations perceive themselves as environmentally friendly—both as individuals and as part of a collective.

### Research Hypotheses

Building upon the reviewed literature, it is evident that environmental goal clarity and green self-identity are significantly associated with EGB. Accordingly, green self-identity is proposed as a mediating variable to elucidate the underlying causal mechanisms linking the independent variables to EGB. This conceptual framework is illustrated in Figure 1.

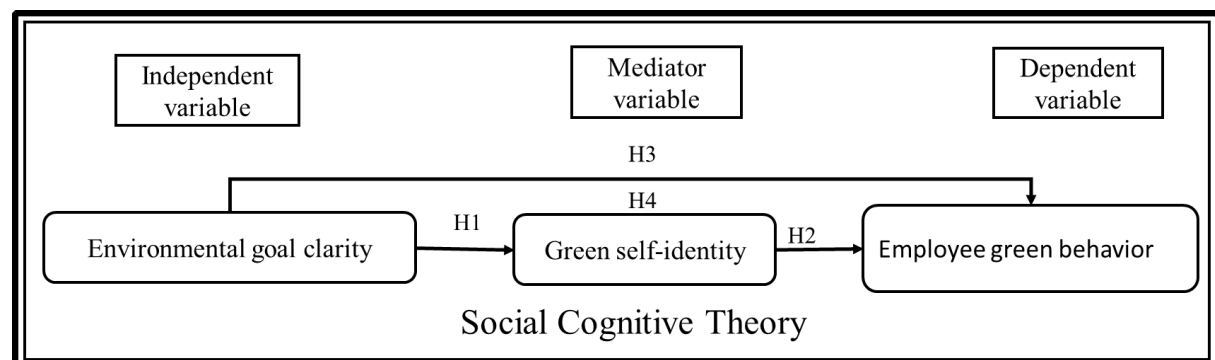


Figure 1: Research Framework



### **Relationship between environmental goal clarity and green self-identity**

Grounded in Bandura's SCT (Albert Bandura, 1999), this study examines the nuanced interplay between environmental goal clarity, green self-identity, and EGB within the workplace. According to the triadic reciprocal causation model of SCT, human behavior emerges dynamically from the interactions among cognitive and personal factors, external contextual influences, and behavior itself. Individual actions are shaped by beliefs and informed by prior experiences (Mateen, Nisar, & Nasir, 2023). In the context of environmental goal clarity, the clear and effective communication of environmental goals is identified as a crucial external environmental factor. When employees possess a well-defined understanding of their team's expectations regarding environmental performance and objectives, they are more likely to cultivate an increased awareness of environmental protection and green behaviors. This process not only encourages pro-environmental actions but also significantly contributes to shaping individual roles and fostering green self-identity (Silintowe & Sukresna, 2023).

SCT emphasizes that self-efficacy and outcome expectations are key to understanding how individuals perceive and engage in specific behaviors (Alruwaie, El-Haddadeh, & Weerakkody, 2020; Hsu, Ju, Yen, & Chang, 2007; Osakwe, Hudik, Řiha, Stros, & Ramayah, 2022). The clearer the goal orientation, the higher the individual's self-efficacy (Duetal, 2020; Schunk, 1990). In the context of environmental goals, employees with clear environmental goals are more likely to have higher self-efficacy for green practices. While environmental self-efficacy is a connotational element of environmental self-identity (Chen & Hsieh, 2023), can importantly affect environmental self-identity (Alhadabi, 2021; Mei et al., 2022; Simonsen & Rundmo, 2020), also expecting positive impacts not only on the environment but also on their self-concept (Becerra et al., 2023). Research suggests that when employees realize they are engaging in environmentally harmful behaviors, driven by green self-identity and consistency, it can make them feel bad as it may weaken their green self-identity (Linda Steg, 2016; Van der Werff et al., 2013a; van der Werff, Steg, & Keizer, 2013b).

H 1: There is a positive relationship between environmental goal clarity and green self-identity.

### **Relationship between green self-identity and employee green behavior**

Self-identity refers to an individual's perception of themselves and their alignment with the beliefs and behaviors of a group to which they aspire or believe they belong (Whitmarsh & O'Neill, 2010). Within the framework of SCT (Albert Bandura, 1999), self-identity is regarded as a key individual cognitive factor that can influence behavior and attitudes. It underscores the central role of self-concept in shaping personal actions (Hongdan Zhao, Zhao, Chen, & Yu, 2023). EGB, as a behavioral factor, encompasses actions aimed at protecting the environment, conserving resources, fostering sustainability in the workplace, inspiring others to adopt environmentally friendly practices, or initiating sustainable activities (Ones & Dilchert, 2012). Recently, prior studies suggest that green self-identity is considered the antecedent of green purchasing and pro-environmental behavior (Becerra et al., 2023; Siddiquei et al., 2021; Haibo Zhao, Bai, Liu, & Wang, 2022). This is further supported by Tuan (2020) as well as Huang (2023), who pointed out that there is a significant relationship between green identity or green role identity and EGB. According to the perspective of SCT, logistics employees with higher green self-identity tend to be highly involved in green practices in their workplaces. This is further confirmed by van der Werff, Steg, and Ruepert (2021), who explained that the more people perceive that the goal of an organization is to minimize environmental impact, the more they consider themselves environmentalists. Stronger green self-identity is further associated with various environmental behaviors, including energy use behaviors, continued use of

electric vehicles, acceptance of environmental policies, and general environmental behaviors. Therefore, the following hypothesis is formulated:

H 2: There is a positive relationship between green self-identity and employee green behavior.

### **Relationship between environmental goal clarity and employee green behavior**

Goal clarity reflects the degree to which employees clearly and effectively comprehend the organization's objectives (Farrukh et al., 2023), and it has been found to be associated with employee behaviors such as green environmental behavior (PENG Jian, 2020; Wengang et al., 2023), organizational citizenship behavior (Ha & Moon, 2023), work engagement (Fürstenberg, Alfes, & Kearney, 2021; J. Kim, Kim, & Kwon, 2020). According to Ha and Moon (2023), when employees have a thorough understanding of goals, they can assess and develop their ability to achieve those goals, actively learning new knowledge and skills relevant to their tasks. Conversely, if employees lack clear goals, they may overlook information necessary for their good performance, thus deviating from normal task behaviors (Wengang et al., 2023). Furthermore, experience suggests that employees' perception of environmental goals contributes to environmental goal clarity (PENG Jian, 2020). They further point out that the higher the environmental goal clarity, the clearer employees' environmental responsibilities become, leading to a persistent display of green environmental behavior (PENG Jian, 2020). The rationale lies in the fact that clearly articulated environmental goals offer employees a well-defined direction for their efforts and specific targets to achieve. Building on this foundation, the study proposes the following hypotheses:

H 3: There is a positive relationship between environmental goal clarity and employee green behavior.

### **Mediating role of green self-identity on the relationships between environmental goal clarity and employee green behavior**

According to SCT, EGB can be understood as behavior influenced by individual cognitive factors (i.e., green self-identity) and context factors (i.e., environmental goal clarity). Employees with well-developed green self-identity are more possibly to participant in behaviors consistent with this identity, thereby translating the clarity of environmental goals into tangible environmental actions. Because consistency with environmental goals reinforces their self-identity as green individuals. Subsequently, this green self-identity drives EGB.

Moreover, the mediating role of green self-identity has received widespread attention in relation to external factors such as green HRM, environment-specific servant leadership, perceived environmental responsibility, ethical leadership, and the influence of green peers on EGB (e.g. Darvishmotevali and Altinay (2022), Tuan (2020), Becerra et al. (2023), and W. Song et al. (2023)). Furthermore, according to the SCT perspective, self-efficacy is a critical link between the environment and behavior, and clear goal set can motivate employees and enhance their self-efficacy (R. Farooq, Zhang, Talwar, & Dhir, 2022). Green self-efficacy is closely related to green self-identity (Chen & Hsieh, 2023). Therefore, this study proposes the following hypotheses:

H 4: Green self-identity mediates the relationship between environmental goal clarity and employee green behavior.

### 3. Research Methodology

This study adopts a positivist philosophy, a deductive framework, and quantitative methods to achieve its research objectives. The primary aim is to validate a theoretical framework that examines how the clarity of organizational environmental goals influences employees' green behavior, with green self-identity identified as a mediating variable. In alignment with a preference for quantitative methods, this research will implement a survey-based design. A questionnaire will be utilized to collect data from managers within logistics companies, who are part of the workforce of logistics enterprises, serving as a representative sample of the overall population of employees in Chinese logistics firms. Compared to other countries, China's logistics market has maintained its position as the world's largest for seven consecutive years (Haoming, 2023). Statistics from the International Energy Agency (IEA) indicate that carbon emissions from China's transportation sector increased from 94 million tons in 1990 to approximately 960 million tons in 2021, representing a ninefold increase. This context provides a backdrop for the current survey.

Specifically, the questionnaire will be distributed to managers working at JD.com and SF Express Group Co., Ltd. in Guangdong Province, China. On one hand, Guangdong Province is the largest region in China in terms of logistics market scale, and it is at the forefront of green logistics practices in the country. Moreover, frontline employees predominantly occupy temporary positions with high turnover rates, resulting in limited and unstructured exposure to information related to corporate environmental governance. Finally, Ha and Moon (2023) emphasize that express delivery services are the largest contributors to carbon emissions in China's logistics sector, with emissions continuing to rise; thus, the express delivery industry is a critical focus for emission reduction efforts. Furthermore, data indicates that JD.com and SF Express Group Co., Ltd. hold the largest market share in China's express delivery industry (Yang, 2023). SF Express is headquartered in Shenzhen, China. After years of development, SF Express has become the largest integrated logistics service provider in China and Asia and the fourth largest in the world. Moreover, JD Logistics, as of September 30, 2024, has more than 3,600 warehouses with a total management area of more than 32 million square meters. JD Logistics' service scope covers almost all regions, towns, and populations in China.

Since this study needs to collect questionnaire data from a specific population in a specific area, judgment sampling in purposive sampling best meets the needs of this study. Specific screening criteria include working in JD Logistics or SF Logistics in Guangdong Province, China, and holding a management position for more than three months. Data analysis and screening will be conducted using SPSS and SmartPLS 4.0.

### 4. Conclusion

In summary, this study explores the relationship between the clarity of organizational goals and employees' green behavior, while considering the mediating role of green self-identity within the context of logistics enterprises. As noted by Wengang et al. (2023), one of the key success factors for sustainable organizational environmental goals is the clear communication of environmental objectives. Against this backdrop, the study investigates the factors influencing employees' green behavioral performance in logistics companies, starting from the clarity of environmental goals. Specifically, this research is grounded in SCT and employs questionnaire data collected from JD Logistics and SF Express in Guangdong Province, China, to test the theoretical hypotheses. This study holds significant theoretical value, particularly in contributing new insights to the existing knowledge framework regarding employees' green



behavior. Furthermore, it introduces green self-identity as a mediating variable between the clarity of environmental goals and green behavior, a relationship that has not been thoroughly examined in previous SCT research. The findings of this research contribute to a deeper understanding of the complex interactions among goal clarity, environmental self-identity, and employees' green performance in a green goal-driven organizational environment.

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