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ORIGINAL RESEARCH

# Cognitive Dissonance of Self-Standards: A Negative Interaction of Green Compensation and Green Training on Employee Pro-Environmental Behavior in China

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**Purpose:** Studies of GHRM practices number in thousands; however, they have failed to provide Chinese contextual evidence for their interactive effects on employee pro-environmental behavior (EPEB). To bridge this research gap as well as to address organizational practitioners' concern in GHRM practices, our study explores the possible interactive effect of green compensation (GC) and green training (GT), which are two core practices of GHRM and are widely employed by Chinese organizations simultaneously, on EPEB drawing on self-determination theory, and unravels the underlying mechanism by introducing employee green self-accountability (EGSA) as a mediator based on the cognitive dissonance theory of self-standards.

**Methods:** Using on-line survey and five-point Likert rating method, employees (N=847) working in Chinese organizations were requested to self-rate GC, GT, and EGSA; their direct supervisors were invited to evaluate EPEB. The mediated moderation testing procedures with SPSS and the bootstrapping approach with MPLUS were adopted to test the mediated moderation.

**Results:** When being used separately, GC and GT are positively related to EPEB ($\beta$=0.426, $p < 0.001$; $\beta$=0.368, $p < 0.001$). When being adopted simultaneously, a negative relationship (the simple slope=−0.454, t=3.671, p=0.000) exists between GC and EPEB at higher-level GT. EGSA partially mediates the negative interaction with 95% bias-corrected confidence intervals [−0.054, −0.018].

**Conclusion:** In the Chinese context, when being used simultaneously with high–high combination, GC and GT negatively interact with each other to engender the squeezed effect of intrinsic motivation by extrinsic motivation, which directly impairs EPEB, and cause employee cognitive dissonance of self-standards, which indirectly weakens EPEB through reducing EGSA. This paper is an attempt to show novelty in identifying negative interactions between GC and GT in EPEB in China and a mediating role of EGSA. Additionally, it addresses organizational practitioners' concern well and provides important implications for decision-making in GHRM practices and EPEB enhancement.

**Keywords:** green compensation, green training, employee pro-environmental behavior, employee green self-accountability, cognitive dissonance of self-standards, mediated moderation

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## Introduction

Resource constraints and environmental challenges during economic development have become increasingly severe over the past several decades,[1,2] along with which

Received: 3 July 2021
Accepted: 27 August 2021
Published: 11 September 2021



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the continuous Go-Green Movement and Green Wave across the globe have made organizations strongly aware of the paramount significance of sustainable development. Thus, organizational practitioners seek to employ all kinds of business practices to minimize the destructive impacts on environment,[3] which cover green accounting, green marketing, green purchasing, green manufacturing, green supply chain management, green human resource management, and so on.[4] As human resource plays a crucial role in green policies, green procedures, and green activities in organizational pursuit of sustainable development,[5–10] the greening practices of human resource management naturally capture worldwide concern and develop so rapidly that "Green Human Resource Management (GHRM)" has emerged and has become an important domain in practice and research.[7,11]

Simply, GHRM refers to the human resource management aspect of organizations' environmental management.[11] It reflects organizational efforts towards a win–win between economic development and environmental sustainability.[6] "Green compensation (GC)" and "Green training (GT)," in which our study is interested, are exactly two core practices of GHRM that are widely adopted by organizations.[10,12–16] Except for these two, GHRM practices consist of green recruiting, green performance management, green employee involvement, green organizational culture, and so on.[2,3] To achieve organizations' environmental goal, practitioners often use two or more GHRM practices together. They expect these GHRM practices could mutually enhance organizations' sustainable development. Thus, they are greatly concerned about not only effectiveness of single GHRM practice but the potential interaction effectiveness of two or more GHRM practices as well.

After systematically reviewing GHRM literature, however, we find that researchers either tended to parcel GHRM practices as "the bundle of GHRM practices" or "the GHRM bundle" to explore the overall influence,[17–22] or were inclined to examine the effect of single GHRM practice.[10,16,23–28] It is well-established that the functional dimensions of (G)HRM are interrelated with each other to influence employees' (green-related) cognition, attitudes, behavior, and performance.[29] Thus, a research gap exists in the interaction field of GHRM practices. Recently, Pham et al have devoted their attention and efforts to examining the interactions of GHRM practices on corporate environmental performance,[24] organizational citizenship behavior for the environment,[25] and employee commitment towards the environment in Vietnam.[26] Despite the fact that they did not disclose the black box, they have made a great contribution to extant GHRM research and have set a good beginning in this emerging field. To enhance this momentum, our study aims at exploring the potential interaction of green compensation and green training on employee pro-environmental behavior in the Chinese context and more importantly seeks to unravel the underlying mechanism. Our main research problems are as follows: (1) What is the potential effect that green compensation and green training interact with each other to bring to employee pro-environmental behavior in the Chinese context? (2) What is the underlying mechanism?

We concentrate on "the Chinese context" due to two reasons. First, GHRM studies in the Chinese context are very scarce,[3] which is extremely inconsistent with China's booming economy, severe resource constraints, serious environmental issues, growing public green awareness, and remarkable environmental achievements. Although it is a developing country, China has made great progress in both economic development and environmental management over the past decade.[3] Research on GHRM with a background of China, however, is still in its infancy.[2,30] As the biggest developing country, research on the effectiveness of Chinese GHRM practices will provide valuable reference to other developing countries. Therefore, it is necessary for researchers to carry out GHRM studies in the Chinese context. Second, the effectiveness of (G)HRM practices cannot fail to take contextual factors such as national culture into consideration,[31] which urges (G)HRM studies under different cultural contexts. China is a most representative country that roots in Confucianism. Humanity, righteousness, propriety, wisdom, and faithfulness are typical features of Chinese Confucianism.[32] GHRM practices embedded in Chinese Confucianism may demonstrate not-the-same effects on employees' green-related cognition, attitudes, and behavior. Accordingly, it is necessary to thoroughly examine the effectiveness of GHRM practices in the Chinese context. We believe it could contribute to extant GHRM literature by providing Chinese contextual evidence.

Regarding the effectiveness of GHRM practices in the Chinese context, we attempt to investigate the potential interaction of green compensation (GC) and green training (GT) on employee pro-environmental behavior (EPEB). Generally, Chinese organizational practitioners prefer two typical incentives: one is material or financial incentive

through compensation system and the other one is spiritual incentive through training programs. Therefore, GC, which refers to the financial incentives contingent on employees' achievement of environmental goals or reduction of harmful consequences on environment when working or the rewards for employees' green-related cognition, attitudes, and behavior conducive toward environmental sustainability,[2,3,12,15] and GT, which refers to a series of planned programs aiming at boosting employees' green values, cognition, knowledge, capacities, and skills,[12,16,33] naturally become core practices of GHRM in Chinese organizations. Unfortunately, almost no study in GHRM has paid attention to revealing the interaction of these two typical GHRM practices in the Chinese context. Despite that Pham et al have conducted three studies to investigate the interaction of GHRM practices recently, they were concerned about corporate environmental performance,[24] organizational citizenship behavior for the environment,[25] and employee commitment towards the environment,[26] rather than employee pro-environmental behavior that plays a crucial role in organizations' environmental sustainability.[34] Besides, their studies were carried out in the context of Vietnam,[24–26] rather than in the Chinese context. Therefore, it remains unknown about what effect green compensation and green training may interact with each other to influence employee pro-environmental behavior in China, when, and why.

Our study seeks to unfold the interaction and its black box based on self-determination theory and the cognitive dissonance theory of self-standards.[35–37] As aforementioned, GC mainly aims at eliciting or strengthening employee extrinsic motivation of pro-environmental behavior by providing monetary rewards,[2,3,12,15] whereas, GT greatly focuses on activating or enhancing employee intrinsic motivation of pro-environmental behavior by satisfying competence needs.[12,16,33] To some extent, GC establishes a personal standard of EPEB through encouraging employees to gain financial rewards, whereas GT sets a normative standard of EPEB through motivating employees to pursue ethical spirits. Given that most people influenced by Chinese Confucianism value ethical spirits pursuit over material pursuit,[32] it is inevitable that the employees who behave pro-environmentally at workplace are more likely to be labeled as materialist or the profits-seeking whether they select personal standard or normative standard as their internally held self-standard when the high–high combination of GT and GC is carried out. Thus, employee cognitive dissonance engendered by the dilemma of self-standard choice from these two kinds of standards and the squeezed effect of intrinsic motivation by extrinsic motivation,[35–37] together weaken employee green self-accountability (EGSA), which depicts employees' desire to live up to their internally held self-standard of workplace pro-environmental behavior.[38] The weaker EGSA, which indicates that employees feel less accountable towards EPEB, thereby decreases EPEB. Hence, we predict that, when GC and GT are adopted in high–high combination in the Chinese context, they tend to interact with each other to decrease EPEB through weakening EGSA. Besides this mediated moderation, our study retests the relationships between GC/GT and EPEB in the Chinese context. The theoretical model we construct is shown in Figure 1.

Our study contributes to existing GHRM literature in three ways. Most notably, it focuses on a theoretically and practically meaningful phenomenon in organizational GHRM practices in China—what effect GC and GT may interact with each other to bring to EPEB, when, and why, which could provide the Chinese contextual evidence to GHRM research. Second, it discovers the "negative" interaction of GC and CT on EPEB in China, which may be the first study to find the "negative" consequence of GHRM practices. Third, it seeks to unlock the black box of the negative interaction from the perspective of EGSA, which not only contributes a new mediating mechanism to GHRM effects research but also plugs the research gap in mediating mechanism as pioneers in the interaction field of GHRM practices have not attempted to explore the potential mediating mechanism.[24–26] Our study also makes contributions to organizational practices. It identifies that GC and GT are each other's important boundary condition of their potential effect on EPEB, and EGSA plays a mediating role in the interaction of GC and GT, which could facilitate organizational practitioners to make appropriate decisions in GHRM practices and EPEB improvement.

## Theoretical Background and Hypotheses

### Relationships Between GC/GT and EPEB

Extant literature often employs AMO framework to explain the (positive) influences of GHRM practices.[3,24–26] Here, besides AMO theory, we use social exchange theory to infer the potential effects of GC and GT separately on EPEB in the Chinese context.

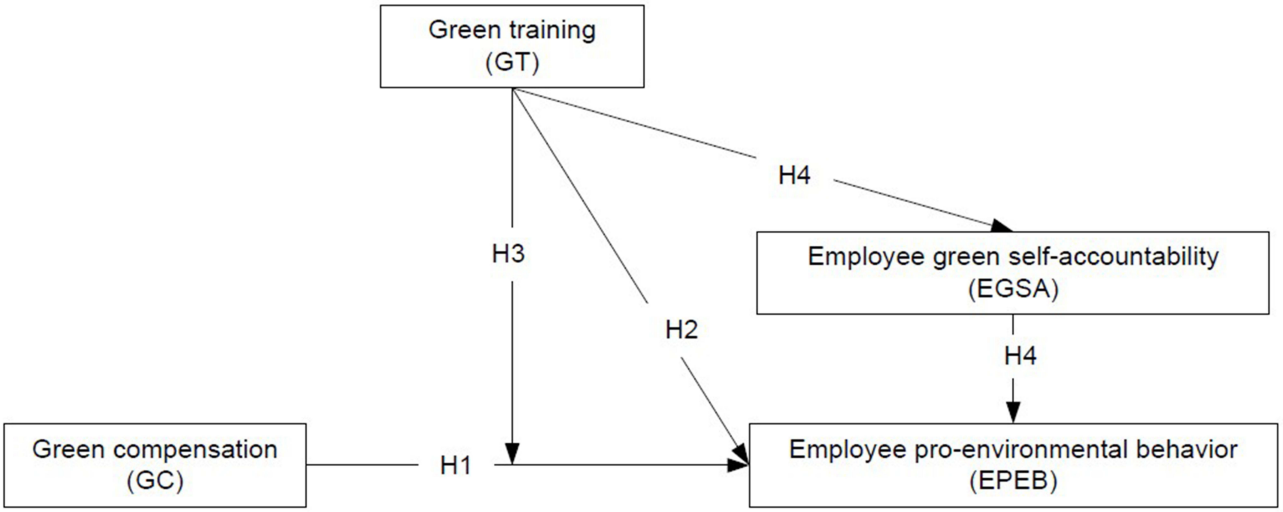



**Figure 1** The theoretical model.
**Notes**: H1-H4 represent hypotheses 1–4 our study puts forward concerning the research problems. H1 and H2, respectively, predict that GC and GT are positively related to EPEB in the Chinese context. H3 infers the interaction of GC and GT on EPEB in the Chinese context. H4 predicts the mediation of EGSA in the interaction.

According to AMO theory, GHRM practices could influence employees' green-related cognition, attitudes, and workplace behavior by affecting their green-related ability, green-related motivation, and green-related opportunity. Each AMO element could contribute to improving employees' green-related cognition, attitudes, and workplace behavior. By definition, GC refers to the financial incentives contingent on employees' achievement of environmental goals or reduction of harmful influences on environment when they perform their tasks,[2,3,15] or the monetary rewards for employees' pro-environmental cognition, attitudes, and behavior that are conducive to organizations' environmental sustainability.[12] Essentially, it aims at eliciting employee extrinsic motivation towards workplace pro-environmental behavior by directly linking monetary rewards to workplace pro-environmental behavior or performance, such that high-level GC is more likely to strengthen employee extrinsic pro-environmental motivation, which thereby enhances EPEB. With respect to GT, it is defined as a series of planned programs primarily aiming at boosting employees' environmental awareness, knowledge, abilities, and skills,[3,10,23] which in essence is an effective business practice that could greatly help employees fully understand why and how to behave pro-environmentally at workplace and could effectively activate employee intrinsic pro-environmental motivation by satisfying competence needs and evoking internal interest in environmental sustainability. Thus, drawing on AMO theory, when being used separately in Chinese organizations, GC tends to promote EPEB by strengthening employee extrinsic pro-environmental motivation, and GT is more likely to boost EPEB by enhancing employee intrinsic pro-environmental motivation and their green-related abilities.

Drawing on social exchange theory, we can obtain similar predictions. Specifically, there are two kinds of exchange relationships between employee and organization: one refers to economic exchange relationship that emphasizes material benefits exchange and often is short-term oriented, the other one refers to social exchange relationship that concerns socio-emotional resource exchange and is usually long-term oriented.[39] Whether the economic one or the social one, both are instrumental for each party to achieve their own goals. As for our study, GC mainly focuses on economic exchange relationship between employees and the focal organization, by which employees could get higher rewards, whereas the focal organization could reap EPEB and could realize its sustainable development; therefore, GC to some extent is equal to a typical transaction-based GHRM practice. GT highlights the long-term social relationship between employees and the focal organization, by which employees could improve their cognition, knowledge, abilities, and skills and achieve career growth whereas the focal organization could obtain commitment, trust, attachment, and loyalty and thereby could achieve higher-level EPEB and

environmental sustainability,[16,24–26] thus, GC to some extent is equal to a typical commitment-based GHRM practice.

To sum up, when being carried out separately in Chinese organizations, GC or GT tends to promote EPEB, which is consistent with previous findings in non-Chinese contexts.[17,24–26,40–43] Accordingly, we put forward Hypotheses 1 and 2.

Hypothesis 1: When Chinese organizations adopt green compensation individually, green compensation tends to enhance employee pro-environmental behavior.

Hypothesis 2: When Chinese organizations adopt green training individually, green training tends to strengthen employee pro-environmental behavior.

## Interaction of GC and GT on EPEB

We have discussed the potential impacts of GC and GT separately on EPEB in the Chinese context so far. Next, we attempt to predict their interactive effect on EPEB when they are implemented simultaneously in Chinese organizations based on self-determination theory.

We speculate that when GC and GT are adopted together by Chinese organizations, their potential influences on EPEB probably become complicated due to the possible interaction of two distinct pro-environmental motivations, respectively, activated by GC and GT. Specifically, when GT is at low level or organizations in China provide insufficient GT, the weak environmental climate and faint employee pro-environmental awareness make it difficult for employees to thoroughly understand the significance of workplace pro-environmental behavior in organizational sustainability.[16] Moreover, the insufficient training of environment-related knowledge, abilities, and skills almost fails to meet employee competence needs and activate employee internal interest in workplace pro-environmental behavior,[44] which consequently may lead to the deficiency of employee intrinsic motivation. In this case, the intensive implementation of GC which directly and closely links EPEB with monetary rewards will undoubtedly enable employee extrinsic motivation to be activated and ultimately could strengthen EPEB. Hence, we posit that GC is more likely to boost EPEB when GT is insufficient or at low level.

Conversely, when organizations in China invest a lot in GT, employees' strong environmental awareness, responsibility, knowledge, ability, and skills, which are inculcated or enhanced by high-level GC,[45] tend to give rise to employee competence needs, which enable employees to internalize workplace pro-environmental behavior as their internal interest unconsciously.[35,36] Plenty of training programs concerning environment-related knowledge, abilities, and skills further stimulate employee intrinsic pro-environmental motivation. Moreover, with high-level GT, employees could fully understand the mounting significance of workplace pro-environmental behavior, which therefore probably enables EPEB to be less dependent on GC. In this situation, the intensive implementation of GC, however, may cause employee intrinsic motivation to be squeezed, as the employees taking part in pro-environmental behavior are more likely to be labeled as materialist or the profits-seeking when the focal organization adopts these two GHRM practices simultaneously, such that the higher GC level is, the more likely the employees taking part in pro-environmental behavior are labeled as materialist, the stronger the squeezed effect of focal employees' intrinsic motivation becomes.[35,36] Put simply, GC to some extent obliterates the great significance of workplace pro-environmental behavior by directly associating it with monetary rewards and ignores employees' ethical spirits pursuit. Therefore, when GT level is relatively high, employee intrinsic pro-environmental motivation stemming from high-level GT may be greatly squeezed by the extrinsic pro-environmental motivation arising from intensive GC, which in turn makes GC in this situation tend to weaken EPEB.

It is noteworthy that the spiritual pursuit of workplace pro-environmental behavior advocated by GT does not contradict the material pursuit encouraged by GC.[41] However, they are essentially two distinct types of pursuits, particularly in China: (1) As for most Chinese employees, the ethical spirits pursuit, which are deeply rooted in mind and based on the hypothesis of "employees being primarily good," stands much higher than the material pursuit. Through GT, organizations immersed in the Chinese Confucianism attempt to realize "harmony" between economic development and environmental sustainability by "virtues" such as not guided by profit, humanity, righteousness, propriety, wisdom, and faithfulness.[32,46] In this situation, employees tend to regard workplace pro-environmental behavior as their own responsibility and internal interest. (2) GC and its material pursuit are based on the hypothesis of "economic man." Organizations using GC attempt to achieve "efficiency" in their environmental goals by "systems."[32,46] In this

situation, employees are more likely to view workplace pro-environmental behavior as the equivalent of monetary rewards. Implementing these two GHRM practices simultaneously could enable these two distinct kinds of pursuits to become true probably, it is yet inevitable that the employees performing workplace pro-environmental behavior are more likely to be labeled as materialist, which is usually unbearable for individuals heavily influenced by the Chinese Confucianism.[32] Thus, the squeezed effect of intrinsic pro-environmental motivation by extrinsic pro-environmental motivation naturally takes place in the Chinese context. Accordingly, in view of self-determination theory and Chinese Confucianism, we suggest that GC is more likely to weaken EPEB when GT is at a high level in the Chinese context.

Taking the above arguments together, we propose Hypothesis 3.

Hypothesis 3: When organizations in China implement green compensation and green training simultaneously, green compensation tends to weaken (strengthen) employee pro-environmental behavior when green training is at high (low) level.

## Mediation of EGSA

We have argued that across different levels of GT, GC exerts divergent effects on EPEB when organizations in China employ GC and GT simultaneously. In this section, we seek to uncover the underlying mechanism from the perspective of employee green self-accountability based on the cognitive dissonance theory of self-standards.

Employee green self-accountability (EGSA) refers to employees' desire to live up to their internally held self-standard of workplace pro-environmental behavior.[38] In other words, EGSA illustrates employees' needs to justify their green actions to self-identity or self-image shaped by their internally held beliefs, values, or standards.[47] Generally, a clear self-standard of workplace pro-environmental behavior and a good situation accessible to employees to live up to their internally held self-standard of workplace pro-environmental behavior contribute to enhancing their desire, which thereby brings high-level EGSA. As important GHRM practices, GT and GC, however, provide employees with different standards of workplace pro-environmental behavior, such that, following the logic of virtue,[46] GT largely aims at activating employees' ethical spirits pursuit by inculcating their environmental awareness, values, and responsibility as well as arousing their internal competence needs by improving environment-related knowledge, abilities, and skills, whereas, following the logic of efficiency,[46] GC primarily advocates employees' material pursuit by simply linking workplace pro-environmental behavior to monetary rewards. To some extent, GT in Chinese organizations concentrates on establishing a normative standard of workplace pro-environmental behavior for employees through presetting a "reputation-seeking" image, while GC in Chinese organizations focuses on setting a personal standard of workplace pro-environmental behavior for employees through presupposing a "profit-seeking" image.[32,46] When organizations in China implement high-level GC, the "personal" standard that motivates employees to behave pro-environmentally to pursue monetary rewards is situationally accessible for employee self-standard; when organizations in China adopt high-level GT, the "normative" standard that encourages employees to pursue environmental sustainability through active workplace pro-environmental behavior is situationally accessible for employee self-standard. However, which one will be salient as internally held employee self-standard of workplace pro-environmental behavior when organizations in China carry out GC and GT at the same time?

It is well established that how others and oneself tend to interpret and evaluate one's actions and a good situation accessible to the focal one largely determine whether he or she will commit to a given behavior.[37] Similarly, whether the normative standard encouraged by GT or the personal standard asserted by GC will be salient as employee self-standard of workplace pro-environmental behavior in China primarily depends on Chinese social preference for these two distinct self-images underlying GT and GC and the situational accessibility of EPEB made by the combination of GT and GC. According to the cognitive dissonance theory of self-standards and related literature,[37,38,47,48] the differentiated Chinese social preference for these two distinct self-images underlying GT and GC will cause employee cognitive well-being problem, which thereby sharply influences the clarity of employee self-standard in workplace pro-environmental behavior, and the distinct comparison results between GT and GC will lead to good or bad situational accessibility. Therefore, in the contexts of high and low levels of GT, GC tends to exert divergent effects on the clarity of employee self-standard and situational accessibility of EPEB, then results in distinct levels of EGSA, and

consequently leads to different levels of EPEB. The detailed explanations are as follows.

First, in the context of high-level GT, the intensive implementation of GC is more likely to inhibit EPEB by lessening EGSA due to the ambiguous self-standard and bad situational accessibility. In China, the combination of high-level GT and intensive GC tends to make employees stuck in a choice dilemma of self-standard between normative standard inculcated by intensive GT and personal standard encouraged by high-level GC. This dilemma to some extent reflects Chinese employees' severe entanglement between "reputation-seeking" and "profits-seeking." Surely, there is nothing to blame for "reputation-seeking" or "profits-seeking." However, when they are put together, people prefer to seek reputation rather than profits under influence of Chinese Confucianism.[32,46] Accordingly, employees in the situation of high–high combination of GC and GT must choose one standard as their internal self-standard of workplace pro-environmental behavior. They will experience fierce struggles: (1) If they choose normative standard asserted by high-level GT as internally held self-standard, which is consistent with spiritual pursuit advocated by the Chinese Confucianism, they will feel proud initially. As time goes by, however, their green behaviors at workplace motivated by their spiritual pursuit will be rewarded by their focal organizations due to intensive GC; then, they will be more likely to be viewed as a profits-seeking man who simply aims at seeking monetary rewards linking with green behaviors. This misclassification of self-standard by others is more inclined to incur confusion and make them fall into severe cognitive dissonance: I did choose to seek reputation, but why my green behavior is regarded as profits-seeking in others' eyes? As a result, the initial pride will be replaced by cognitive dissonance, which weakens focal employees' persistence and obscures the clarity of self-standard. (2) In the case that they boldly choose personal standard advocated by the intensive implementation of GC as their self-standard, they will inevitably face the pressure of public moral opinion and encounter contempt from people around them since high-level GT has already penetrated normative standard into people's mind. Surely, employees' adherence to this "despised" and "stressful" self-standard will be weakened, which thus blurs the clarity of their self-standard.

It seems that the high–high combination of GC and GT provides dual guarantees to create a good situation to behave pro-environmentally at workplace, which is also the expectation of organizational practitioners. However, in fact, this combination greatly reduces the situational accessibility of EPEB due to its potential cognitive dissonance and ambiguous self-standard. Taken together with the above, in the context of high-level GT, the intensive implementation of GC is more inclined to obscure the clarity of self-standard and lead to bad situational accessibility of EPEB, which together weaken EGSA. The more intensive GC is, the more severe employee cognitive dissonance is, the vaguer employee self-standard is, and the worse the situational accessibility of EPEB is, which thereby could result in lower-level EGSA. The lower-level EGSA, which represents that employees have less accountability to live up to their not-clear self-standard of workplace pro-environmental behavior will consequently decrease EPEB. Further, cognitive dissonance stemming from the dilemma of self-standard selection between normative standard and personal standard will motivate employees to rethink the two-step process of dissonance arousal: people behave environmentally and then people interpret and evaluate pro-environmental actions.[37] As employee cognitive dissonance occurs in the second step, the focal one is more inclined to avoid the first step, which gives rise to the second step, ie, to avoid behaving environmentally, which thus inhibits EPEB. Although almost no studies have directly explored the relationship between EGSA and EPEB, several empirical studies of self-accountability support our prediction: self-accountability has been found to be a good predictor of consumer purchasing behavior,[38,47] self-regulatory behavior,[48] and healthy behaviors.[49]

Second, in the context of low-level GT, the intensive implementation of GC tends to promote EPEB by heightening EGSA due to the clear self-standard and good situational accessibility. Since GT level is relatively low, the normative standard of employee pro-environmental behavior is too faint to influence employee self-standard. Under this situation, the intensive implementation of GC is more likely to make personal standard salient and accessible to focal employees, which thus avoids employee cognitive dissonance between normative standard and personal standard and in turn enables personal standard encouraged by intensive GC to become employee self-standard of workplace pro-environmental behavior. Additionally, GC provides employees with a feasible way to realize their self-standard (ie, the personal standard encouraged by GC) through the close linkage between workplace pro-environmental behavior and monetary

rewards. Therefore, in the context of low-level GT, the intensive implementation of GC brings employees not only clear self-standard but good situation (ie, the intensive green compensation system) to make it become true as well, which together improve EGSA and ultimately motivate them to behave more pro-environmentally at workplace to bring themselves up to the self-standard they have selected.

To sum up the above two situations, when GT level is high, GC is more likely to reduce EPEB by weakening EGSA, whereas, when GT level is low, GC tends to increase EPEB by strengthening EGSA. Thus, we predict that EGSA may be a mediator that explains the interaction mechanism of GC and GT on EPEB, which is summarized in Hypothesis 4.

Hypothesis 4: In the Chinese context, employee green self-accountability mediates the negative (positive) relationship between green compensation and employee pro-environmental behavior when green training is at high (low) level.

# Method

## Sample and Procedure

Our questionnaire survey commenced in January 2020 when the COVID-19 became a global pandemic with increased awareness of environmental sustainability in China. We had planned to conduct an on-site questionnaire survey within the companies that have cooperated with us. Nevertheless, the Chinese government encouraged employees to work at home. As a result, we had to use an on-line questionnaire survey with convenience sampling method.

To avoid the common method bias, we collected data from employees and their direct supervisors. The employee questionnaire includes specific definitions of terms, guidelines, the measuring items of GC, GT, and EGSA, and the direct supervisor's mobile phone number. The director supervisor questionnaire consists of specific definitions of terms, guidelines, and the measuring items of focal subordinate's EPEB. Human resource managers in our cooperative organizations sent these two questionnaire-links to employees individually through Wechat APP. Each participant employee was requested to use five-point Likert rating method (1=strongly disagree, 5=strongly agree) to self-rate the perceptions of GC, GT, and EGSA through completing the on-line employee questionnaire; then, he or she invited his or her direct supervisor to use the same method to evaluate EPEB through completing the on-line direct supervisor questionnaire.

Both participant employee and his or her direct supervisor were requested to use their mobile phones to complete the on-line questionnaires. When they answered the on-line questionnaires with their own mobile phones, the website saved their mobile phone numbers automatically. Through the compulsory item at the bottom of the employee questionnaire which asked the participant employee to fill in his or her direct supervisor's mobile phone number and the mobile phone number automatically saved in the direct supervisor questionnaire, we matched the two questionnaires.

All measuring items were adapted from previous studies and were in English, thus we had to translate them in Chinese through back-translation and then conducted a pilot survey to ensure the feasibility of a formal survey.[50] As aforementioned, our survey needs each participant employee to approach his or her direct supervisor to assess EPEB. If we adopt an on-site questionnaire survey, the direct supervisors will hesitate to evaluate their focal subordinates' EPEB as they are full of worries about the evaluation results being seen, which will increase the survey difficulty. Therefore, we initially planned to invite participants with small scale for the pilot survey. Fortunately, the on-line survey eliminates the direct supervisors' worries. Moreover, the convenient and fast network communication technology enables a wide spread of questionnaire-links. In the end, we obtained 452 valid samples within 1 month of the pilot survey, which greatly exceeded our plan and heightened our expectation for the scale of formal survey.

The pilot survey (N=452) confirmed good validity and reliability of our four-variable scales; thus, we conducted a formal survey from March 2020 to May 2020. The leaders and employees not only took part in the on-line questionnaire survey themselves but actively forwarded the questionnaire-links within their personal networks as well, such as their relative, classmate, or friend WeChat group, their partners, and so on, which largely extended our samples. Consequently, a total of 847 valid samples were collected, within which 74.262% came from the non-manufacturing sectors and 25.738% were from the manufacturing sector. Of 847 samples, 39.079% were male, and most were well educated (77.332% had completed college or university). With respect to age, 35.655% were below 30 years old, 15.939% were between 31 and 40 years old,

and 48.406% were above 40 years old. Among them, 52.302% were in non-management positions. Regarding organizational tenure, 34.475% reported no more than 6 years, 18.300% reported between 7 and 15 years, 27.037% reported between 16 and 25 years, and 20.189% reported more than 25 years.

## Measures

Following the back-translation procedure,[50] we obtained all the measuring items of four variables in Figure 1. As aforementioned, to ensure the reliability and validity of the translated Chinese-language scales, we took a pilot survey (N=452), from which we retained the measuring items.

### Green Compensation (GC)

Mousa and Othman developed an eight-item scale to measure green performance management and compensation,[18] within which four items directly focus on GC. We adopted these four items to measure GC: "when environmental programs are improved, employees are rewarded for their remarkable ideas," "employees who have achieved or have exceeded environmental objectives are rewarded with cash prizes or other non-cash equivalents," "managers reward employees when they improve environmental programs," and "employees are punished for non-compliance with environmental standards in organization." Each participant was asked to indicate to what extent these items described how he or she experienced or felt at workplace (1=strongly disagree, 5=strongly agree). The pilot survey (N=452) suggested that all four items made contributions. The Cronbach's alpha for this four-item scale in formal survey (N=847) is 0.860.

### Green Training (GT)

Based on Dumont et al's six-item scale to measure GHRM,[17] within which only two items focus on GT, and Mousa and Othman's eight-item scale to measure green training and involvement,[18] we obtained a five-item scale to measure GT. Each participant employee was asked to indicate to what extent these five items described how he or she experienced or felt at workplace (1=strongly disagree, 5=strongly agree). The pilot survey (N=452) suggested that all five items made contributions. These five items are "training programs about environment are provided to large-scale individuals in my company," "my company provides employees with green training to promote green values," "my company provides employees with green training to develop knowledge and skills required for green management," "the topics offered through green training are modern and suitable for company activities," and "in general, employees are satisfied with company's green training programs." Cronbach's alpha for this five-item scale in formal survey (N=847) is 0.925.

### Employee Green Self-Accountability (EGSA)

EGSA is the hypothesized mediator in our theoretical model (Figure 1). We used Peloza et al four-item scale to measure it.[38] Each employee was asked to indicate to what degree (1=strongly disagree, 5=strongly agree) he or she "values taking care of environment," "values making environmentally sustainable choices," "values conserving natural resources," and "thinks it is important to consider impacts on environment." Cronbach's alpha for this four-item scale in formal survey (N=847) is 0.869.

### Employee Pro-Environmental Behavior (EPEB)

We measured EPEB using Kim et al's six-item scale.[51] To avoid common method bias, we asked each participant employee to approach his or her direct supervisor to rate EPEB (1=strongly disagree, 5=strongly agree). The pilot survey (N=452) suggested that all six items made contributions. These six items are "the focal subordinate avoids unnecessary printing to save papers," "the focal subordinate uses a personal cup instead of a disposable cup," "the focal subordinate uses stairs instead of elevators when going from floor to floor in the building," "the focal subordinate recycles reusable things at workplace," "the focal subordinate reuses papers to take notes in the office," and "the focal subordinate sorts recyclable materials into appropriate bins when others don't." Cronbach's alpha for this six-item scale in formal survey (N=847) is 0.791.

### Control Variables

We controlled for participants' demographic variables (ie, gender, age, and education) and vocational variables (organizational tenure, job category, and industry) that could be correlated with EPEB. Specifically, gender, 1=male, 0=female; age, 1=less than 23 years old, 2=23–25 years old, 3=26–30 years old, 4=31–35 years old, 5=36–40 years old, 6=41–50 years old, 7=51–60 years old, 8=more than 60 years old; education, 1=high school or below, 2=vocational college, 3=undergraduate education in university, 4=master, 5=doctor; organizational tenure, 1=less than 1 year, 2=2–5 years, 3=6–10 years, 4=11–15 years, 5=16–20 years, 6=21–25 years, 7=26 years or above; job category, 1=non-management, 2=first-line management, 3=middle-level

management, 4=top management; industry, 1=the manufacturing sector, 0=the non-manufacturing sectors.

## Statistical Analysis

We mainly adopted the mediated moderation testing procedures with SPSS recommended by Muller et al to verify the mediated moderation.[52] Besides, we used the bootstrapping approach with MPLUS to estimate the 95% bias-corrected confidence intervals of the indirect, direct, and overall interaction of GC and GT on EPEB.[53] Other than a series of confirmatory factor analyses (CFA) and Chi-square difference tests between the hypothesized four-factor model (ie, GC, GT, EGSA, and EPEB) and each alternative model,[53] we followed suggestions given by Fornell and Larcker, O'Leary-Kelly and Vokurka, and Hair et al to calculate the composite reliability (CR), the average variance extraction (AVE), and square root of AVE of each variable to ensure the reliability and validity of our four latent variables.[54–56]

# Results

## Reliability and Validity Analysis

Table 1 presents the results of confirmatory factor analyses and chi-square difference tests. Table 2 shows the means, standard deviations, and correlation coefficients among variables. Table 3 summarizes the results of Cronbach's alpha, CR, AVE, and square root of AVE.

**Table 1** Results of Confirmatory Factor Analyses and Chi-Square Difference Tests (N=847)

| Model | $\chi^2$ | DF | $\chi^2$/DF | RMSEA | SRMR | CFI | TLI | $\Delta\chi^2(\Delta DF)$ |
|---|---|---|---|---|---|---|---|---|
| GC, GT, EGSA, EPEB | 128.436 | 48 | 2.676 | 0.044 | 0.026 | 0.988 | 0.983 | – |
| GC+GT, EGSA, EPEB | 578.646 | 51 | 11.346 | 0.111 | 0.067 | 0.920 | 0.896 | 450.210(3)*** |
| GC+EPEB, GT, EGSA | 581.398 | 51 | 11.400 | 0.111 | 0.066 | 0.919 | 0.896 | 452.962(3)*** |
| GC+EGSA, GT, EPEB | 719.434 | 51 | 14.107 | 0.124 | 0.086 | 0.898 | 0.869 | 590.998(3)*** |
| GT+EGSA, GC, EPEB | 834.589 | 51 | 16.364 | 0.135 | 0.068 | 0.881 | 0.846 | 706.153(3)*** |
| GC, GT, EGSA+EPEB | 961.232 | 51 | 18.848 | 0.145 | 0.085 | 0.862 | 0.821 | 832.796(3)*** |
| GC, EGSA, EPEB+GT | 1005.965 | 51 | 19.725 | 0.149 | 0.076 | 0.855 | 0.812 | 877.529(3)*** |
| EGSA, GC+GT+EPEB | 1279.524 | 53 | 24.142 | 0.165 | 0.083 | 0.814 | 0.768 | 1151.088(5)*** |
| EPEB, GC+GT+EGSA | 1318.809 | 53 | 24.883 | 0.168 | 0.090 | 0.808 | 0.760 | 1190.373(5)*** |
| GT, GC+EGSA+EPEB | 1436.821 | 53 | 27.110 | 0.176 | 0.100 | 0.790 | 0.738 | 1308.385(5)*** |
| GC, GT+EGSA+EPEB | 1614.176 | 53 | 30.456 | 0.186 | 0.097 | 0.763 | 0.705 | 1485.740(5)*** |
| GC+GT+EGSA+EPEB | 1997.922 | 54 | 36.999 | 0.206 | 0.104 | 0.705 | 0.639 | 1869.486(5)*** |

**Notes**: ***p<0.001. GC, GT, EGSA, and EPEB respectively represent green compensation, green training, employee green self-accountability, and employee pro-environmental behavior. $\chi^2$, DF, RMSEA, SRMR, CFI, and TLI respectively represent Chi-square, degree of freedom, root mean square error of approximation, standardized root mean square residual, comparative fit index, and Tucker–Lewis index.

**Table 2** Means, Standard Deviations, and Correlation Coefficients (N=847)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.$C_1$ | 1 | | | | | | | | | |
| 2.$C_2$ | 0.149** | 1 | | | | | | | | |
| 3.$C_3$ | 0.063 | −0.260** | 1 | | | | | | | |
| 4.$C_4$ | 0.165** | 0.894** | −0.216** | 1 | | | | | | |
| 5.$C_5$ | 0.139** | 0.135** | 0.165** | 0.138** | 1 | | | | | |
| 6.$C_6$ | 0.104** | 0.051 | −0.173** | 0.049 | 0.132** | 1 | | | | |
| 7.GC | 0.022 | 0.010 | −0.025 | −0.002 | −0.088* | −0.025 | 1 | | | |
| 8.GT | 0.077* | 0.063 | 0.026 | 0.047 | −0.087* | −0.013 | 0.640** | 1 | | |
| 9.EGSA | 0.003 | 0.024 | −0.124** | 0.001 | −0.078* | −0.029 | 0.468** | 0.556** | 1 | |
| 10.EPEB | 0.058 | −0.009 | −0.092** | −0.053 | −0.100** | −0.008 | 0.518** | 0.491** | 0.511** | 1 |
| M | 0.391 | 4.353 | 2.392 | 4.045 | 1.714 | 0.257 | 1.923 | 1.997 | 1.798 | 1.729 |
| SD | 0.488 | 2.13 | 0.926 | 2.26 | 0.866 | 0.437 | 0.647 | 0.721 | 0.541 | 0.541 |

**Notes**: **p<0.01; *p<0.05. $C_1$-$C_6$, separately represent gender, age, education, organizational tenure, job category, and industry. GC, GT, EGSA, and EPEB respectively represent green compensation, green training, employee green self-accountability, and employee pro-environmental behavior.
**Abbreviations**: M, mean; SD, standard deviation.

**Table 3** Cronbach's Alpha, CR, AVE, and Square Root of AVE (N=847)

| | Green Compensation | Green Training | Employee Green Self-Accountability | Employee Pro-Environmental Behavior |
|---|---|---|---|---|
| Cronbach's Alpha | 0.860 | 0.925 | 0.869 | 0.791 |
| CR | 0.873 | 0.928 | 0.864 | 0.792 |
| AVE | 0.697 | 0.811 | 0.680 | 0.560 |
| Square Root of AVE | 0.835 | 0.901 | 0.825 | 0.748 |

**Abbreviations**: CR, the composite reliability; AVE, the average variance extraction.

As shown in Table 1, our hypothesized four-factor model (ie, GC, GT, EGSA, and EPEB) has a satisfactory fit to data:[57,58] $\chi^2(48)=128.436$, $\chi^2/df=2.676$, CFI=0.988, TLI=0.983, RMSEA=0.044, SRMR=0.026, and it is significantly superior to each alternative model at 0.001 level. Additionally, results in Tables 2 and 3 suggest that Cronbach's alpha and CR of our four latent variables all exceed 0.70,[55] AVE results all exceed 0.50,[54] and none of the correlation coefficients between these four variables (ie, 0.640, 0.468, 0.556, 0.518, 0.491, and 0.511) exceeds the corresponding square root of AVE (ie, 0.835, 0.901, 0.825, and 0.748).[56] Thus, the reliability and validity evidence for our four latent variables in the Chinese context is provided.

## Descriptive Statistics and Correlation Analysis

As shown in Table 2, EPEB is negatively associated with education ($r=-0.092$, $p < 0.01$) and job category ($r=-0.100$, $p < 0.01$), whereas it is positively related to GC ($r=0.518$, $p < 0.01$), GT ($r=0.491$, $p < 0.01$), and EGSA ($r=0.511$, $p < 0.01$). Moreover, both GC and GT are negatively associated with job category ($r=-0.088$, $p < 0.05$; $r=-0.087$, $p < 0.05$), whereas, they are positively related to EGSA ($r=0.468$, $p < 0.01$; $r=0.556$, $p < 0.01$).

## Hypotheses Testing Results

Tables 4 and 5 present the testing results for Hypotheses 1 to 4.

Hypotheses 1 and 2 posit that when organizations in China adopt GC or GT individually, GC or GT tends to enhance EPEB. As shown in Model 1, EPEB is significantly related to gender ($C_1$) ($\beta=0.100$, $p < 0.01$), age ($C_2$) ($\beta=0.041$, $p < 0.05$), education ($C_3$) ($\beta=-0.054$, $p < 0.05$), organizational tenure ($C_4$) ($\beta=-0.053$, $p < 0.01$), and job category ($C_5$) ($\beta=-0.054$, $p < 0.05$). The results of Model 2 further indicate that, after controlling for these influences, the relationship between GC and EPEB is significantly positive ($\beta=0.426$, $p < 0.001$), which thereby supports

**Table 4** Regression Analyses for Employee Pro-Environmental Behavior (N=847)

| Predictor Variables | Employee Pro-Environmental Behavior | | | | |
|---|---|---|---|---|---|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
| Intercept | 1.950(0.077)*** | 1.087(0.083)*** | 1.259(0.079)*** | 0.964(0.079)*** | 0.693(0.085)*** |
| $C_1$ | 0.100(0.039)** | 0.079(0.033)* | 0.057(0.034) | 0.075(0.032)* | 0.076(0.031)* |
| $C_2$ | 0.041(0.020)* | 0.034(0.017)* | 0.025(0.017) | 0.020(0.016) | 0.021(0.015) |
| $C_3$ | −0.054(0.022)* | −0.050(0.018)** | −0.072(0.019)*** | −0.055(0.018)** | −0.034(0.017)* |
| $C_4$ | −0.053(0.018)** | −0.047(0.016)** | −0.047(0.016)** | −0.038(0.015)* | −0.037(0.014)* |
| $C_5$ | −0.054(0.022)* | −0.025(0.019) | −0.018(0.020) | −0.014(0.018) | −0.017(0.018) |
| $C_6$ | −0.024(0.043) | −0.012(0.037) | −0.025(0.038) | −0.007(0.035) | 0.004(0.034) |
| GC | | 0.426(0.024)*** | | 0.301(0.030)*** | 0.259(0.030)*** |
| GT | | | 0.368(0.022)*** | 0.214(0.027)*** | 0.127(0.029)** |
| GC × GT | | | | −0.151(0.025)*** | −0.117(0.024)*** |
| EGSA | | | | | 0.253(0.034)*** |
| F | 4.697*** | 48.705*** | 43.720*** | 52.635*** | 56.079*** |
| Adjusted $R^2$ | 0.026*** | 0.283*** | 0.261*** | 0.355*** | 0.394*** |

**Notes**: ***p<0.001; **p<0.01; *p<0.05. The coefficients are unstandardized with standard errors in parentheses. $C_1$-$C_6$ separately represent gender, age, education, organizational tenure, job category, and industry. GC, GT, and EGSA respectively represent green compensation, green training, and employee green self-accountability.
**Abbreviations**: F, F-statistic; $R^2$, coefficient of determination.

**Table 5** Regression Analyses for Employee Green Self-Accountability (N=847)

| Predictor Variables | Employee Green Self-Accountability | | |
|---|---|---|---|
| | Model 6 | Model 7 | Model 8 |
| Intercept | 2.033(0.077)*** | 1.251(0.086)*** | 1.073(0.079)*** |
| $C_1$ | 0.029(0.039) | 0.010(0.035) | −0.007(0.031) |
| $C_2$ | 0.019(0.020) | 0.013(0.017) | −0.004(0.016) |
| $C_3$ | −0.073(0.022)** | −0.070(0.019)*** | −0.082(0.017)*** |
| $C_4$ | −0.021(0.018) | −0.016(0.016) | −0.008(0.015) |
| $C_5$ | −0.034(0.022) | −0.008(0.020) | 0.010(0.018) |
| $C_6$ | −0.056(0.044) | −0.045(0.039) | −0.045(0.035) |
| GC | | 0.386(0.025)*** | 0.165(0.030)*** |
| GT | | | 0.346(0.027)*** |
| GC × GT | | | −0.133(0.024)*** |
| F | 3.259** | 36.610*** | 55.647*** |
| Adjusted $R^2$ | 0.016** | 0.228*** | 0.368*** |

**Notes**: ***p<0.001; **p<0.01. The coefficients are unstandardized with standard errors in parentheses. $C_1$-$C_6$ separately represent gender, age, education, organizational tenure, job category, and industry. GC and GT respectively represent green compensation and green training.
**Abbreviations**: F, F-statistic; $R^2$, coefficient of determination.

Hypothesis 1. Similarly, the regression coefficients of Model 3 suggest that GT significantly boosts EPEB (β=0.368, p < 0.001), which thus supports Hypothesis 2.

Hypothesis 3 predicts that when being adopted simultaneously by Chinese organizations, GC and GT could interact with each other to influence EPEB, such that GC will boost EPEB when GT is at low level, whereas GC will decrease EPEB when GT is at high level. In Model 4, the product term of GC and GT (ie, GC × GT) significantly impairs EPEB (β=−0.151, p < 0.001), which initially supports Hypothesis 3. To show the specific interactive effects, we followed the procedures recommended by Preacher et al to perform a simple slopes analysis.[59] The results indicate that when GT level is higher (ie, 1 SD above the mean), the corresponding simple slope is significantly negative (the simple slope= −0.454, t=3.671, p=0.000), whereas, when GT level is lower (ie, 1 SD below the mean), the simple slope of GC regressed on EPEB is significantly positive (the simple slope=0.150, t=4.080, p=0.000), which supports Hypothesis 3. Detailed interactive effects are graphed in Figure 2.

Hypothesis 4 puts forward a mediated moderation, which predicts that the interaction of GC and GT on EPEB in China could be explained by employee green self-accountability (EGSA). Based on the mediated moderation testing procedures suggested by Muller et al,[52] we tested Hypothesis 4 by examining whether the following three conditions hold (1) GT moderates the relationship between GC and EPEB, (2) GT moderates the relationship between GC and EGSA, and (3) EGSA mediates the relationship between GC × GT and EPEB.

First, the moderating effect of GT on the relationship between GC and EPEB is confirmed earlier (ie, Hypothesis 3), suggesting that the first condition holds. Second, as shown in Model 8, GT significantly moderates the relationship between GC and EGSA (β=−0.133, p < 0.001). Simple slopes analysis results indicate that when GT is at higher level (ie, 1 SD above the mean), GC significantly weakens EGSA (the simple slope=−0.500, t=4.087, p=0.000), whereas, when GT is at lower level (ie, 1 SD below the mean), GC tends to slightly strengthen EGSA (the simple slope=0.032, t=0.888, p= 0.375, not significant). Figure 3 presents a specific interactive pattern. Therefore, the second condition is met.

Third, the regression coefficients of Model 5 in Table 4 demonstrate that EGSA is positively associated with EPEB (β=0.253, p < 0.001). Further, in this step, when we controlled for EGSA (ie, the hypothesized mediator), the negative interaction of GC and GT (ie, GC × GT) on EPEB becomes weaker (from β=−0.151, p < 0.001 in Model 4 to β=−0.117, p < 0.001 in Model 5). Thus, the third condition holds.

Taken together, three conditions recommended by Muller et al to test a mediated moderation model all hold true,[52] which provides evidence consistent with the mediating role of EGSA in the negative interaction of GC and GT on EPEB. Hence, the results support Hypothesis 4.

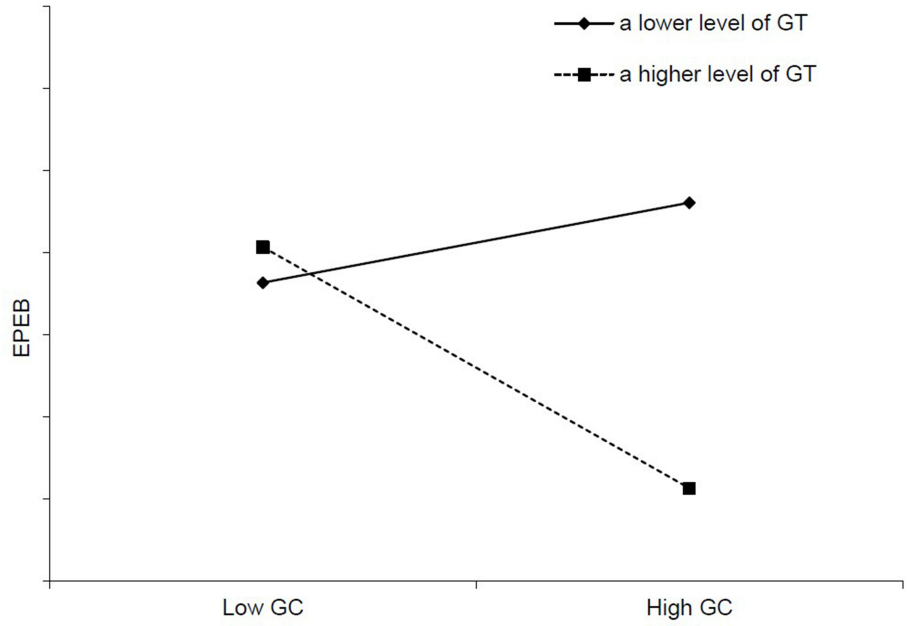



**Figure 2** The interactive effects of green compensation and green training on employee pro-environmental behavior in China.
**Notes**: The horizontal axis represents green compensation (GC) and the vertical axis represents employee pro-environmental behavior (EPEB). The dotted line shows a significant weakening effect of GC on EPEB when green training (GT) is at higher level: the simple slope=−0.454, t=3.671, p=0.000. The solid line shows a significant strengthening effect of GC on EPEB when GT is at lower level: the simple slope=0.150, t=4.080, p=0.000.

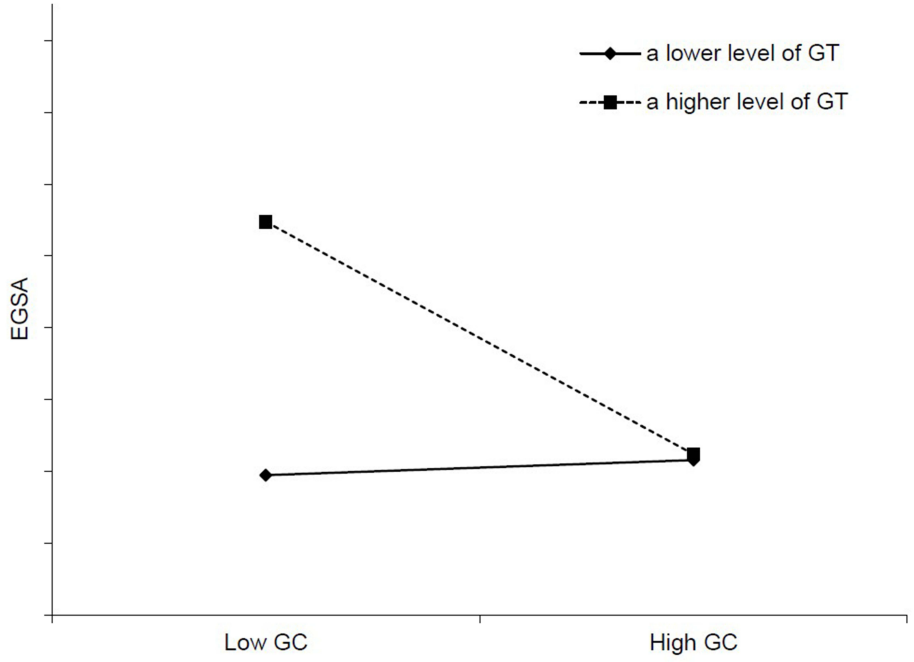



**Figure 3** The interactive effects of green compensation and green training on employee green self-accountability in China.
**Notes**: The horizontal axis represents green compensation (GC) and the vertical axis represents employee green self-accountability (EGSA). The dotted line shows a significant weakening effect of GC on EGSA when green training (GT) is at higher level: the simple slope=−0.500, t=4.087, p=0.000. The solid line shows a slight strengthening effect of GC on EGSA when GT is at lower level: the simple slope=0.032, t=0.888, p= 0.375.

**Table 6** Indirect, Direct, and Overall Interaction

| Bootstrapping | Estimate | SE | LL 95% CI | UL 95% CI |
|---|---|---|---|---|
| Indirect Interaction | −0.034 | 0.009 | −0.054 | −0.018 |
| Direct Interaction | −0.117 | 0.030 | −0.175 | −0.058 |
| Overall Interaction | −0.151 | 0.033 | −0.214 | −0.086 |

**Abbreviations**: SE, standard error; LL, lower limit; UL, upper limit; CI, confidence interval.

To further test Hypothesis 4, we adopted the bootstrapping approach with MPLUS to estimate the 95% bias-corrected confidence intervals of the indirect interaction of GC and GT on EPEB via EGSA, the direct interaction of GC and GT on EPEB, and the overall interaction of GC and GT on EPEB,[53] results of which are displayed in Table 6. The 95% bias-corrected confidence intervals were based on 5000 bootstrapping samples.

As shown in Table 6, the indirect interaction via EGSA is significant (the estimate value=−0.034, 95% CI [−0.054, −0.018], not including 0), which accounts for 22.517% of the overall-interaction (the estimate value=−0.151, 95% CI [−0.214, −0.086], not including 0). Accordingly, the negative interaction of GC and GT on EPEB can be explained by the fact that when GT level is higher, GC tends to reduce EGSA which in turn weakens EPEB, whereas, when GT level is lower, GC tends to enhance EGSA which in turn strengthens EPEB. Hence, Hypothesis 4 is established.

## Discussion

This study develops a mediated moderation model and puts forward four hypotheses concerning what effect green compensation and green training may interact with each other to bring to employee pro-environmental behavior, when, and why in China.

The analysis results provide convincing evidence to support Hypotheses 1 and 2, such that when being carried out individually by organizations in the Chinese context, green compensation (Hypothesis 1) or green training (Hypothesis 2) tends to enhance employee pro-environmental behavior, which is consistent with previous findings in the non-Chinese contexts.[17,24–26,40–43] Despite that more and more studies have dedicated attention to the relationship between GHRM practices and employee pro-environmental behavior,[11] it has not been fully explored yet.[2] For example, most studies took place under the background of the developed countries such as UK, Italy, France, Spain, and Belgium,[3] which greatly neglected the potential relationship under the background of the developing countries such as China, the world's biggest developing country. Results of Hypotheses 1 and 2 add contextual value to extant literature by demonstrating that the positive relationships between green compensation or green training and employee pro-environmental behavior hold true in China as well.

The analysis results related to Hypothesis 3 suggest that when being adopted simultaneously by Chinese organizations, green compensation and green training tend to interact with each other to significantly affect employee pro-environmental behavior, such that when green training is at high level, employee pro-environmental behavior is negatively dependent on green compensation, whereas, when green training is at low level, employee pro-environmental behavior is positively dependent on green compensation. As aforementioned, there is a dearth of research on the interaction of GHRM practices, three studies conducted by Pham et al however are the exceptions.[24–26] Nevertheless, Pham et al mainly focused on the interactive effects of green training, green performance management, and green employee involvement,[24,25] rather than green compensation and green training, which are universally adopted by Chinese organizations; their outcome variables were employee environmental commitment, organizational citizenship behavior for the environment, and corporate environmental performance, rather than "employee pro-environmental behavior" which plays a crucial role in organizational sustainability. Additionally, despite that Pham et al paid attention to the interaction of green training and green reward on employee commitment toward environment,[26] they hypothesized a "positive" interaction, which was not empirically established yet (β=0.082, p=0.306, n. s., page 456). Drawing on self-determination theory, we highlight the squeezed effect of intrinsic pro-environmental motivation by extrinsic pro-environmental motivation in the Chinese context,[35,36] which is divergent from Pham et al AMO framework without contextual consideration.[24–26] China is a country deeply influenced by the Confucianism,[49] within which "benevolence, righteousness, courtesy, wisdom, and faith" are the core values currently guiding most Chinese people's daily behaviors. Chinese Confucianism claims the supremacy of ethical spirits pursuit and has penetrated people's daily life. Thus, when intensive green training has already shaped

or strengthened employees' awareness and responsibility towards environment, the implementation of green compensation is not likely to become a contributing factor to employee pro-environmental behavior, but alternatively will squeeze or weaken the positive effect of green training on employee pro-environmental behavior due to its claim of material pursuit. Further, the coexistence of personal standard set by green compensation and normative standard established by green training is more likely to engender employee cognitive dissonance of self-standard and thereby leads to a negative interaction of green compensation and green training on employee pro-environmental behavior.

The analysis results also provide evidence to support Hypothesis 4, which predicts that, when green compensation and green training are adopted simultaneously in Chinese organizations, employee green self-accountability mediates their interaction on employee pro-environmental behavior. Specifically, when green training is at higher (lower) level, green compensation tends to weaken (strengthen) employee pro-environmental behavior because these two GHRM practices tend to reduce (enhance) employee green self-accountability by obscuring (improving) the clarity and giving rise to bad (good) situational accessibility of self-standard in employee pro-environmental behavior. This mediation sheds light on the interaction research of GHRM practices by uncovering the black box of why and how GHRM practices interact with each other to affect employee behavior towards environment, since the extant three studies focusing on the interaction of GHRM practices have not explored the underlying mechanism.[24–26]

## Theoretical Implications

First, our study provides Chinese contextual evidence to extant GHRM literature by focusing on a theoretically and practically meaningful phenomenon about GHRM practices in Chinese organizations—what effect green compensation and green training may interact with each other to bring to employee pro-environmental behavior, when, and why. Extant GHRM research primarily concerns non-Chinese contexts, like some European countries within which governments carry out extremely rigid rules and regulations to protect environment.[3] In China, due to efforts of the State Environmental Protection Administration, the National Environmental Monitoring Centre, the Green China Forum, organizations, and people, environmental quality has been greatly improved recently. More and more Chinese organizations have become aware of sustainable development and have carried out GHRM practices, in which green compensation and green training are two most universal ones. The scarce attention being paid to Chinese GHRM practices is inconsistent with China's growing public concern and remarkable environmental improvement. Our study constructs a mediated moderation model to respond to organizational practitioners' main concern that what effect green compensation and green training may interact with each other to bring to employee pro-environmental behavior, when, and why. To our knowledge, it is the first one to explore the interaction of GHRM practices on employee pro-environmental behavior, boundary condition, and underlying mechanism, particularly in the Chinese context considering influences of Chinese Confucianism. Therefore, our study not only plugs the research gap but provides Chinese contextual evidence to extant GHRM research as well. Besides, our study confirms that the positive relationships separately between green compensation or green training and employee pro-environmental behavior hold true in the Chinese context, which is beneficial for a comprehensive understanding of GHRM effectiveness from the contextual nature of scientific research.

Second, our study reveals that in Chinese organizations, when green training is at a high level, the intensive adoption of green compensation tends to "reduce" employee pro-environmental behavior, which may be the first study to discover the "negative" consequence of GHRM practices and may predict a new research direction. Since the emergence of GHRM practices, enormous efforts have been devoted over the past decade in attempts to explore the effectiveness of GHRM practices. Researchers have confirmed the "positive" impacts of GHRM practices on organizations' financial, environmental, or social performance,[18,24,41,60–64] corporate social responsibility,[22] green organizational culture,[64] corporate green psychological climate,[22] employee environmental commitment,[26] organizational citizenship behavior for the environment,[25,65] and employee pro-environmental behavior.[17,22,42,43,63,64] In addition, pioneers in the interaction field of GHRM practices have revealed the "positive" interaction of GHRM practices on employee environmental commitment and organizational citizenship behavior for the environment.[24–26] In fact, everything is double-sided. When two or more GHRM practices are implemented simultaneously, they may interact with each other to lead to some unexpected results. However, the "positive"

effects of GHRM practices are blindly emphasized whereas the potential "negative" effects are strongly neglected. Our study finds that intensive green compensation interacts with high-level green training to not only directly "inhibit" employee pro-environmental behavior due to the squeezed effect of intrinsic motivation by extrinsic motivation, but also indirectly "impair" employee pro-environmental behavior through "weakening" employee green self-accountability due to the ambiguous self-standard and bad situational accessibility. Therefore, our study presents strong evidence to demonstrate the existence of "negative" influence of GHRM practices, which opens a new research direction in GHRM field and helps us better understand the consequences of GHRM practices.

Third, our study unravels the influencing mechanism underlying the negative interaction of green compensation and green training on employee pro-environmental behavior in the perspective of employee green self-accountability based on the cognitive dissonance theory of self-standards, which bridges the research gap in influencing mechanism of GHRM practices interaction and helps us understand "why" or "how" these two GHRM practices negatively interact with each other to weaken employee pro-environmental behavior. Despite that three studies conducted by Pham et al focused on the potential interaction of GHRM practices,[24–26] they neither concerned the interaction on employee pro-environmental behavior nor explored the underlying mechanism(s). Our study seeks to undo the black box of negative interaction of green compensation and green training on employee pro-environmental behavior from the perspective of employee green self-accountability, which is the first study to discover the influence mechanism behind the interaction of GHRM practices. Based on the cognitive dissonance theory of self-standards and self-accountability related research, we identify the mediating role of "employee green self-accountability" in the Chinese context. In other words, the high–high combination of green compensation and green training not only directly impairs employee pro-environmental behavior because of the squeezed effect of intrinsic motivation but also indirectly weakens employee pro-environmental behavior via the reduced employee green self-accountability due to the ambiguous self-standard and bad situational accessibility incurred by the dilemma of self-standard choice and employee cognitive dissonance. Thus, our study plugs the research gap through contributing a new influencing mechanism (ie, the mediation of employee green self-accountability) to the interaction of GHRM practices.

## Practical Implications

Our study has several implications for organizational decision-making in GHRM practices and the improvement of employee pro-environmental behavior through identifying that GC and GT are each other's important boundary condition of their potential effects on employee pro-environmental behavior, and employee green self-accountability plays a mediating role in the interaction of green training and green training on employee pro-environmental behavior.

First, organizational practitioners in China could employ green compensation or green training alone to promote employee pro-environmental behavior based on the positive relationships separately between green compensation or green training and employee pro-environmental behavior in the Chinese context which are empirically confirmed by our study. Previous studies taking place in non-Chinese contexts indicated that GHRM practices are positively related to employee pro-environmental behavior.[17,22,42,43,63,64] Our study retests the relationships separately between green compensation or green training and employee pro-environmental behavior in the Chinese context and finds that the positive relationships hold true in the Chinese context. Thus, the practical implication that organizational practitioners could improve employee pro-environmental behavior through using green compensation or green training alone is generally applicable.

Second, when organizational practitioners in China adopt green compensation and green training simultaneously, they should try their best to avoid the high–high combination as it weakens employee green self-accountability and inhibits employee pro-environmental behavior in the Chinese context. As the Chinese Confucianism claims the supremacy of spiritual pursuit over material pursuit, on the one hand, the high–high combination of green compensation and green training is more likely to directly "weaken" employee pro-environmental behavior due to the squeezed effect of employee intrinsic motivation, on the other hand, it tends to indirectly "reduce" employee pro-environmental behavior through "lowering" employee green self-accountability because of the ambiguous self-standard, employee cognitive dissonance, and bad situational accessibility. In other words, green compensation

and green training are each other's important boundary condition of their potential effects on employee green self-accountability and pro-environmental behavior when being used together. Hence, Chinese organizational practitioners should always watch out for the occurrence of high–high combination. When one is at a high level, the other one should not be intensified.

Third, organizational practitioners could enhance employee pro-environmental behavior by taking full advantage of the mediation of "employee green self-accountability." Employee green self-accountability is identified as an important mediator in the interaction of green compensation and green training on employee pro-environmental behavior based on the cognitive dissonance theory of self-standards, such that when green training is at high (low) level, the intensive implementation of green compensation will weaken (strengthen) employee green self-accountability, which thereby inhibits (promotes) employee pro-environmental behavior. To utilize the mediating role, organizational practitioners could improve employee green self-accountability through enhancing the clarity of self-standard in employee pro-environmental behavior. For example, they should introduce some instrumental values like responsibility, self-control, and honesty and some social norms concerning environment into the core elements of organizational culture. More importantly, they should build consensus on these social norms and instrumental values concerning the environment within the focal organization.[48] In doing so, these shared environmental values and social norms will be internalized in employee self-standard of pro-environmental behavior. Then, employees could feel more accountable towards workplace pro-environmental behavior and could actively live up to the clear self-standard, which thereby strengthens employee green self-accountability and consequently promotes employee pro-environmental behavior.

## Limitations and Suggestions for Future Research

The first limitation of this study pertains to the generalizability of findings, which needs to further take cross-cultural comparison into consideration. Just as everything has two sides, one of our study's contributions, which refers to bridging the research gap through exploring the mediated moderation of green compensation and green training on employee pro-environmental behavior via employee green self-accountability in China, is exactly one major limitation, which suggests that the generalizability of our findings concerning this mediated moderation needs to be further examined in the non-Chinese contexts. Specifically, the negative interaction of green compensation and green training on employee pro-environmental behavior is established simply in the Chinese context with typical Chinese cultural features such as highlighting internal incentives over external incentives and preferring reputation-seeking over profits-seeking. It is a well-established fact that researchers should consider the contextual or cultural factors when designing GHRM studies as organizations' environmental management issues per se have contextual nature and differ across cultures.[41,66,67] Accordingly, more studies are needed to test whether the "negative" interaction of GHRM practices in the Chinese context still holds true in the non-Chinese contexts and why. We strongly recommend researchers to further examine our findings in the non-Chinese contexts and conduct some cross-cultural comparative studies in GHRM domain.

The second limitation pertains to the specific GHRM practices (ie, green compensation and green training) that our study concerns. By the multidimensional nature of GHRM,[11,68] GHRM practices include green recruitment and selection, green training, green performance management, green compensation, green job analysis, green discipline management, and so on. Due to Chinese organizations' preference of green compensation and green training, we explore the interaction of them on employee pro-environmental behavior as well as the underlying mechanism. However, other than them, green recruitment and selection (mainly adopted by western organizations), green performance management (adopted by both eastern and western organizations), and green job analysis (mainly adopted by western organizations) have captured concern and interest.[15] Thus, to better understand the interaction of GHRM practices, future research should pay greater attention to the potential interaction of other GHRM practices, which may be not only two-way but also three-way.

The third limitation is that we only unfold the underlying mechanism of the negative interaction of green compensation and green training in view of "employee green self-accountability," which needs future research to fully disclose the black box from other perspectives. In our study, we identify that employee green self-accountability "partially" mediates the negative interaction of green compensation and green training on employee pro-environmental behavior: as shown in Models 4 and 5 in

Table 4, after controlling for EGSA, the negative interaction of GC and GT on EPEB becomes weaker (from −0.151 in Model 4 to −0.117 in Model 5) rather than insignificant, ie, EGSA plays a partial mediation.[53] Dumont et al revealed that psychological green climate plays a mediating role in the relationships between GHRM and employee pro-environmental behavior.[17] Pinzone et al confirmed the mediation of green goal difficulty in the positive influencing process of green training on employee pro-environmental behavior.[10] Our study simply confirms the "partial" mediating role of "employee green self-accountability" in the negative interaction of green compensation and green training on employee pro-environmental behavior, which suggests that other mediators may exist. Studies conducted by Dumont et al and Pinzone et al could provide inspirations for other mediators. Hence, future research should attempt to advance the underlying mechanism(s) research.

## Conclusion

Regarding the theoretically and practically meaningful phenomenon in Chinese organizations' GHRM practices—what effect green compensation and green training may interact with each other to bring to employee pro-environmental behavior, when, and why, our study develops a mediated moderation model. Data from 847 participants working in Chinese organizations as full-employee and their direct supervisors provides evidence consistent with our theoretical model. In detail, when being adopted individually, green compensation or green training is positively related to employee pro-environmental behavior; when being implemented simultaneously, they interact with each other to influence employee pro-environmental behavior such that green compensation does harm to employee pro-environmental behavior when green training is at high level, whereas green compensation promotes employee pro-environmental behavior when green training is at low level. "Employee green self-accountability" plays a mediating role in the interaction of these two GHRM practices. These findings solve the research problems we raised well.

## Ethical Statement

This study was approved by the Human Research Ethics Committee (HREC) at School of Mathematics and Statistics, Xuzhou University of Technology. All procedures involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards with written informed consent from all subjects.

## Acknowledgments

The authors acknowledge the financial support from the Social Sciences Research Project of the Ministry of Education of the People's Republic of China (Grant Number 18YJC630238) and National Natural Science Foundation of China (Grant Number 72132003).

## Disclosure

The authors report no conflicts of interest in this work.

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