How Green Human Resource Management Can Promote Green Employee Behavior in China: A Technology Acceptance Model Perspective

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Abstract: Green human resource management (GHRM) in the environmental management of organizations has gradually become a key issue in academic circles, and its impact on employees' green behavior has received increasing attention. However, few studies have explored its impact from the perspective of information delivery. Based on an analysis of the literature, this research discusses the influence route of five types of GHRM practices (employee life cycle, rewards, education and training, employee empowerment, and manager involvement) on employee green behavior in the workplace and the mediating effects of information needs based on the technology acceptance model. Using cross-sectional survey data from enterprises in the People's Republic of China, the proposed theoretical model was tested and the results showed that employee life cycle, education and training, employee empowerment, and manager involvement all significantly affect the in-role and extra-role green behavior of employees positively, while rewards only significantly predict extra-role behaviors. Information need plays a mediating role on the influence route of the employee life cycle, education and training, and manager involvement on the green behavior of the employees in the workplace.

Keywords: green human resource management; employee green behavior; information need; technology acceptance model; China

1. Introduction

The destruction of natural ecosystems has increased, and the problem of environmental pollution is becoming more serious. Governments and non-governmental organizations all over the world promote the development of laws and policies to reduce the negative effects of environmental destruction on natural resources and human society [1]. All of these factors result in a higher demand for organizations to take measures to improve their environmental performance. As one of the direct influencing factors on the environment [2], organizations have to consider how to coordinate the co-relations between economic goals and environmental goals to achieve a win-win situation of economic and environmental protection and sustainable development. On the other hand, more and more consumers are taking the environmental behaviors of organizations into considerations of consumption due to a common increasing awareness of the environment [3]. Organizations are facing stress from stakeholders and shareholders, as they are forced to carry out environmentally friendly activities [4].

Current studies suggest that human resource management is situated in a central place for the achievement of environmental performance. Organizations implement environmental management by carrying out green practices (e.g., personnel selection, and performance evaluation) that are consistent with environmental goals [5]. As the publication of related policies and the improvement of people's

recognition of environmental sustainability increased, the concept called green human resource management (GHRM) emerged in the progress of organizations toward effective environmental management [6]. It focuses on the coherence between traditional human resource management and the environmental objectives of organizations [7], emphasizing the combination of "green" concepts in ecology with human resource management work. Correspondingly, GHRM practice refers to the aggregation of policies, regulations, and practices which have considered the interests of green activities by different parties [8]. The existing studies focus on the mechanisms of GHRM related to the overall environmental performance of different categories of organizations [3,4,8–10], and little research discusses GHRM's influence on employee green behaviors in the workplace at an individual level [11]. However, as the agents of GHRM practices, employees spend most of their lives at work and can truly put the green behavior policy of the organization into practice [12], and then they can promote the improvement of organizational performance, helping the organization to balance the contradiction between economic goals and environmental goals, and assist in achieving sustainable development. Thus, it is necessary to discuss the influential route of GHRM on employees' green behavior in the workplace.

Although there is some evidence that GHRM practice is associated with employee green behavior in the workplace, theoretical gaps have been highlighted in recent literature. First, the processes and mechanisms through which GHRM practice influences employees' green behavior are remain largely unknown [13]. Second, existing research mostly regards GHRM as a whole, while little research discusses the influence of different categories of practices individually, such as green training and reward [13–15]. Third, most studies are based on the theory of motivation to discuss how external factors influence an employee toward green behavior selection [16–22]; other perspectives or approaches to examine the mechanism underlying the relationship between GHRM practice and employees' green workplace behavior may enhance our understanding of the role of GHRM on organizational sustainability.

In view of the above gaps, the study uses data obtained from the organizations in the People's Republic of China (PRC) to examine the influence of GHRM practice on green workplace behavior from the viewpoint of information technology and information system (IT/IS). Specifically, the objectives of this research are: (1) to present a theoretical model linking GHRM practices on workplaces' green behavior based on the technology acceptance model (TAM), comparing the process of employees' adopting green behavior to the acceptance process of technology systems; (2) to probe into the effects of different GHRM practices on in-role green workplace behavior and extra-role green workplace behavior; and (3) to explore information need as an underlying mechanism explaining the relationship between GHRM practice and employee green behavior.

Therefore this study advances the knowledge of GHRM through the following research contributions. First, the research extends our understanding of the concept of GHRM through examining the role of GHRM practice in promoting employee green behavior from a TAM perspective. In the IT/IS field, there are studies that argue that information is a disturbance in the personal field. If it is designed and used, it can change certain types of environmentally important consumption behavior to some extent [23]. GHRM practice can be regarded as a sort of information from the point of view of IT/IS. Organizations directly or indirectly clarify the importance and significance of green behavior in the workplace by carrying out relevant practices, portraying the vision of environmental protection, and conveying the environmental protection concepts and green values of the organization, while employees choose green behavior in the workplace after receiving this information. Secondly, the study introduces the information need as a mediator to investigate the impact of GHRM practices on employees' environmental-behavior performance in the workplace which contributes to the literature of exploring the underlying mechanism of such impact. As an emerging policy, GHRM practice and its requirements for green behavior are new information for employees, which brings uncertainty to employees and then produces a demand for more information about environmental policy, the environmental impact of one's own behavior and green behavior, etc. By inducting and integrating

such information, employees may generate green behavior intentions and then adopt corresponding green behavior. Practically, a study on the mediating role of information need may be able to make managers pay more attention to information delivery and communication for employees' acceptance of GHRM and engagement of green behavior. Third, the research analyses the effects of GHRM on the in-role and extra-role green behavior in the workplace, which also adds to the knowledge about employees' green behaviors, a concept requiring further attention [24]. Francoeur et al. consider that green behaviors are mostly voluntary (i.e., extra-role green behavior), but behaviors linked to job tasks (i.e., in-role green behavior) is also important [24]. Fourth, the study examines the possible relationship of various GHRM practices with employees' green behavior, which gives us a deep look inside GHRM. Given that the emphasis of different GHRM practices are different, this research follows the classification method of Zibarras and Coan [25], dividing the practices of GHRM into five dimensions: employee life cycle, reward, education and training, employee empowerment, and management involvement. The study explores not only the direct relationship between each practice and employee behavior but also the indirect relationship, as well as the direct and indirect relationship of each practice with in-role and extra-role green behavior, respectively. These issues have not been fully discussed in the existing studies. For example, although Dumont et al. [13] tested the links of GHRM to within-role and extra-role green behavior respectively, they regard GHRM as a whole. While Saeed et al. [14] examined the effects of various GHRM practices, i.e., green recruitment and selection, green training and development, green performance management and appraisal, green reward and compensation, and green empowerment on employees' proenvironmental behavior; they did not differentiate in-role and extra-role behavior.

The structure of the rest of this paper is organized as follows. Section 2 reviews the TAM model and the core variables in the theoretical model regarding GHRM practices and green behavior in the work place, and proposes the theoretical model by introducing the mediator of information need from IT/IS perspective. Section 3 expounds the research methods and Section 4 presents the empirical results. Section 5 closes the paper with conclusions.

2. Literature Review and Theoretical Model

2.1. TAM

The Technology Acceptance Model was first proposed by Davis in 1986 and was initially used to provide a general explanation of the determinants of computer acceptance [26]; i.e., trying to explore and understand the factors that affect whether a user adopts a particular system [27]. This model has been widely used in the fields of information technology and information systems [28]. It is considered an influential technical acceptance model for interpreting behavioral intentions [29], using two constructs to explain computer users' behavior: perceived usefulness (PU) and ease of use (EU) [30]. Davis regarded perceived usefulness as the main determinant and treated perceived ease of use as the second most important factor in this model [31]. The former refers to the extent that one believes that using a particular system would promote better work performance [32]. In an organizational context, people usually try to improve their work performance for rewards, such as promotions, raises, bonuses, etc., [33]. Ease of use is interpreted as the degree to which one believes that the use of a particular system is effortless [34]. A system that is useful but difficult to use is usually not acceptable because efforts are regarded as a kind of limited resource, and people can choose to allocate them reasonably in the activities that they are responsible for, as the benefits from the system are offset by the resources consumed by using the system. Generally, systems that are easy to use are more acceptable to users than others [33]. The influence of external variables on the individual's use of this system are regulated by PU and EU [35]. At present, the TAM model is widely used in a variety of technologies, mainly in the individual choice decision of newly adopted technologies and the determinants of the willingness of use [36–42]; e.g., for unmanned supermarkets, shared cars, mobile

libraries, etc. This model is based on the perspective of user acceptance, thinking that a system can only be effective after being accepted by users.

According to TAM, the PU in this paper is defined as the employee's perceived usefulness of adopting green behaviors in the workplace. On the one hand, by promoting environmental protection, education, and training, through creating policies of environmental rewards, an organization increases the environmental knowledge of employees, enhances employees' awareness of environmental protection and makes employees aware of the importance and usefulness of workplace greening [6,14,25,43]. On the other hand, organizations may implement the concept of green environmental protection throughout the career cycle of its employees to promote employees to pay more attention to environmental protection; for instance, by passing on green values during recruitment [14,25]. Correspondingly, EU in this paper is defined as the degree to which employees perceive taking green behavior on the workplace to be effortless. Organizations can increase employees' abilities and opportunities for green behavior in the workplace through management engagement and employee empowerment, and the provision of environmental training curriculum resources to reduce the resistance of employees to green behavior in the workplace [14,43].

2.2. GHRM Practice and Green Workplace Behavior

Environmental management needs to be implemented for specific personnel. The behavior of employees is bound to affect the implementation of the organization's green practices. Related research holds that it is necessary to raise the environmental awareness of individual employees and motivate them in order for them to carry out relevant practices smoothly [8]. This promotes the integration of environmental management and organizational personnel work [44]. The implementation of the concept of environmental management and sustainable development in the field of human resource management has resulted in a sustainable concept of human resource management: green human resource management. GHRM generally includes five aspects of practice, including recruitment and selection, training, performance management, remuneration and incentive systems, and participation [5]. In the GHRM approach, environmental goals are integrated into organizational goals [14,43]. Reviews on GHRM practices have shown that this research area should receive more attention [6,43]. Renwick et al. developed a theoretical framework of GHRM based on ability–motivation–opportunity (AMO) theory [43], which mainly involves recruitment and selection, training and development, performance management, compensation management, and cultural construction from the HRM functions. Shah [45] describes the underlying GHRM practices from staffing, training and development, motivation, and maintenance as the four major functions of HRM. Specifically, GHRM practices include green job analysis and design, green recruitment and selection, green training and development, green performance management, green compensation management, green health and safety, and green labor relations and employee involvement [45]. GHRM is a multidimensional concept. Unlike general dimensions or constituents, Zibarras and Coan [25] divide the practices of GHRM into five dimensions: employee life cycle, reward, education and training, employee empowerment, and management involvement. Tang et al. [5] and Shah [45] specially studied the scale development to measure GHRM separately. In general, all human resources processes that contribute to the organization's environmental agenda, combined with organizational environmental goals, can be referred to as green human resource management [46,47]. Most empirical studies of GHRM analyze the phenomena at individual level or organization level [6]. Research has proven that GHRM has an obvious impact on employee green behavior in the workplace [13,48]. By carrying out GHRM practices, enterprises can enhance the environmental awareness of employees and their ability to perform green behavior, guide employees to form a common green concept and values, enhance the cohesion of enterprises, and effectively promote the "green factory" of enterprises.

Employee green workplace behavior or workplace pro-environmental behavior refers to a series of behaviors within the organization that are related to environmental sustainability or contribute to environmental sustainability [49,50], which includes two types of behavior: one is in-role green

workplace behavior; that is, green behavior that employees must complete due to stipulations of their job's responsibilities and the organizational reward and punishment system. The other is extra-role green workplace behavior; that is, green behavior initiated by employees spontaneously that is not subject to the formal norms of the organization [13,51,52]. Generally, green behaviors in the workplace are mostly voluntary, which are referred to extra-role green behavior, voluntary green workplace behavior or organizational citizenship behaviors for the environment (OCBE) [19,24,53], but behaviors linked to job tasks are also important, and are referred to as in-role, task-related green behavior [24]. Extra-role green workplace behavior is a green behavior in the workplace that employees adopt on their own initiative in order to improve their environmental performance and improve environmental problems [17]. In-role green workplace behavior is a kind of green behavior in the workplace that employees adopt in order to meet the requirements of their work and is in line with the organization's rules and regulations.

On the topic of the role of GHRM practices on green behaviors in the workplace, existing research has focused on how GHRM practices can play a role in different environmental contexts in terms of influencing the overall environmental performance of the organization. Few studies start from the individual level and analyze how the GHRM practices adopted by the organization act on individual employees and promote the green behavior of employees' personal workplaces [13,14].

Basing on the theory of situational strength, Jia [54] regarded GHRM as a support situation in the workplace and considered that GHRM could promote the transformation and promotion of employees' environmental protection motivation by strengthening the relationship between leadership and the environmental psychology of employees, and that employees would adopt the organizational citizen behavior of the environment. Zibarras and Coan [25] proved that GHRM practice can be used to promote the pro-environment behavior of employees through a survey of 214 British organizations of different sizes and categories. Dumont et al. [13] demonstrated that GHRM could directly and indirectly affect in-role green workplace behavior but can only indirectly affect extra-behavior. Zhou and Zhang [15] verified the indirect effects of GHRM practice on task-related green behavior and voluntary green behavior based on data analysis results from 451 employees. Chen [55] believed that GHRM practices of an organization perceived by the employee could positively influence its green behavior. In the case of education and training, the organization provides employees with environmental knowledge, course resources, and the opportunity to participate in environmental practices in person, promoting employees to be clearer about the significance and importance of green behavior in the workplace, and then choosing to carry out green behavior. In addition, according to the TAM model, the green behavior of employees in the workplace can be regarded as the technology to be received in the model, through the implementation of environmental training and education and other practical measures; if employees feel that green behavior is useful and easy to perform, they will choose to adopt green behavior. Thus, the research aims to address the following hypotheses:

Hypothesis 1a (H1a). *The employee life cycle positively affects in-role green workplace.*

Hypothesis 1b (H1b). *The employee life cycle positively affects extra-role green workplace behavior.*

Hypothesis 2a (H2a). *Reward positively affects in-role green workplace behavior.*

Hypothesis 2b (H2b). *Reward positively affects extra-role green workplace behavior.*

Hypothesis 3a (H3a). *Education and training positively affect intra-role behavior.*

Hypothesis 3b (H3b). *Education and training positively affect extra-role green workplace behavior.*

Hypothesis 4a (H4a). *Employee empowerment positively affects in-role green workplace behavior.*

Hypothesis 4b (H4b). *Employee empowerment positively affects extra-role green workplace behavior.*

Hypothesis 5a (H5a). *Managerial involvement positively affects in-role green workplace behavior.*

Hypothesis 5b (H5b). *Managerial involvement positively affects extra-role green workplace behavior.*

2.3. The Mediating Role of Information Need

Information need is defined as the requirements arising from the differences between the individual's inner cognition and the external environment, and the need to eliminate this deficiency and to judge uncertain things [56]. Some studies denote it as a "broken band;" that is, the difference in understanding formed by the discontinuity of information [57]. According to the information demand hierarchical model constructed by relevant researchers, individuals will consciously realize the information demand in the process of accessing information. In addition, when an individual is aware of the information need, he or she will initiate a search process, retrieve potential information, and accumulate useful information to meet the information needs [58,59].

Studies have shown that information can change some environmentally friendly consumer behavior to some extent, but information has little effect when there are significant barriers outside the individual, such as the inconvenience of actions [23]. In this paper, the information need is defined as the employee's demand for green behavior information.

According to the technology acceptance model, organizations usually let employees realize the difference between their own environmental knowledge and the external, objective environmental protection information but also reduce the resistance of employees to practice green behavior in the workplace through the following: (1) emphasizing the concept of environmental protection throughout the employment cycle and including green behavior in the consideration of major decisions; (2) implementing environmental incentive policies and imposing penalties for non-environmentally friendly behavior; (3) providing environmental education and training to employees; (4) conducting relevant seminars and exchanging environmental knowledge; (5) advocacy and informal encouragement by managers, and consideration of environmental impacts in budgets and corporate visions. The uncertainty that employees create to eliminate this difference creates a need for information about green behavior. Considering the above literature analysis and assumptions, the research proposes that:

Hypothesis 6a (H6a). *The employee life cycle positively affects the information need.*

Hypothesis 6b (H6b). *Reward positively affects information need.*

Hypothesis 6c (H6c). *Education and training positively affect information need.*

Hypothesis 6d (H6d). *Employee empowerment positively affects information need.*

Hypothesis 6e (H6e). *Manager involvement positively affects information need.*

By searching for relevant information, employees make up for their lack of environmental knowledge, and they receive a clearer understanding of GHRM practices and environmental strategic objectives actively promoted by the organization. By inducting and integrating information, employees would receive signals concerning green workplace behavior, which are conducive to the future development of organizations and even individuals in organizations; and organizations will provide technical resources and incentives to encourage employees to adopt green behaviors in the workplace, reduce the additional costs of performing green behaviors, and so on. According to the TAM, after

perceiving the usefulness and ease of implementation of green behavior, employees generate green behavior intentions and then adopt corresponding green behavior.

On these grounds, this research proposes that:

Hypothesis 7a (H7a). *Information need positively affects in-role green workplace behavior.*

Hypothesis 7b (H7b). *Information need positively affects extra-role green workplace behavior.*

Combined with Hypothesis 1–7, this paper holds that information need plays a mediating role in the impact of GHRM practice on employees' green behavior in the workplace. An organization depicts the organization's environmental protection vision and transmits green signals to employees, guiding employees to improve environmental awareness, collect environmental information, and enrich environmental protection knowledge through the implementation of GHRM practices. By gathering information and understanding the organization's environmental vision and goals more fully, employees are proactive or responsible for fulfilling their tasks in a more environmentally friendly manner.

Therefore, this research presents the following assumptions:

Hypothesis 8a (H8a). *Information need plays a mediating role between the employee life cycle, and in-role green workplace behavior.*

Hypothesis 8b (H8b). *Information need plays a mediating role between the employee life cycle, and extra-role green workplace behavior.*

Hypothesis 9a (H9a). *Information need plays a mediating role between reward, and in-role green workplace behavior.*

Hypothesis 9b (H9b). *Information need plays a mediating role between reward, and extra-role green workplace behavior.*

Hypothesis 10a (H10a). *Information need plays a mediating role between education and training, and intra-role behavior.*

Hypothesis 10b (H10b). *Information need plays a mediating role between education and training, and extra-role green workplace behavior.*

Hypothesis 11a (H11a). *Information need plays a mediating role between employee empowerment, and in-role green workplace behavior.*

Hypothesis 11b (H11b). *Information need plays a mediating role between employee empowerment, and extra-role green workplace behavior.*

Hypothesis 12a (H12a). *Information need plays a mediating role between managerial involvement, and in-role green workplace behavior.*

Hypothesis 12b (H12b). *Information need plays a mediating role between managerial involvement, and extra-role green workplace behavior.*

Combining the above assumptions, the research framework of this paper is shown in Figure 1.
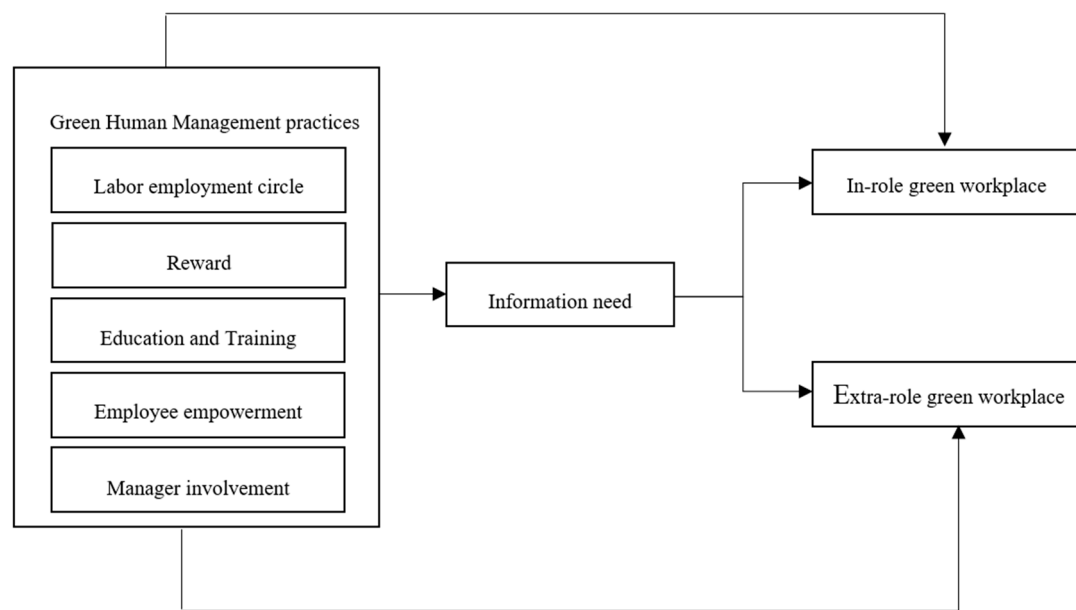
Figure 1. Theoretical Model.

3. Methods

3.1. Sample Selection and Data Collection

In this study, the data were collected through an offline questionnaire, and samples were taken from employees in terms of different unit properties, scale, industry, and level according to the principle of convenient sampling. The subjects are mainly distributed in institutions, state-owned enterprises, and private enterprises. According to the standard industrial classification method, sample industries mainly include agriculture, animal husbandry, forestry, fisheries, finance and insurance, accommodation services, administrative assistance, art, recreation, and entertainment. There were 150 surveys distributed. As researchers strictly controlled the sample filling process to ensure that the quality was high, the final effective sample volume was 145, and the response rate was 96%. The average age of the persons surveyed was 30.7. The average length of service was 5.9 years, and the average term with their current organization was 4.78 years; more than 73.8% of the respondents had a bachelor's degree or above. Men accounted for 41.4% percent of the 145 respondents, compared with 55.9% percent of female employees.

3.2. Measurement

3.2.1. Green Human Management Practice

This paper selects 17 items from Zibarras and Coan [25] to measure the practice of GHRM which is divided into five dimensions of employee life cycle (LT), reward (R), education and training (ET), employee empowerment (EE), and management involvement (IN). Four relate to the employee life cycle (e.g., "recruitment and selection criteria that recognize environmental behavior"); four relate to reward (e.g., "individual incentives or reward programs that encourage environmental behavior"); three relate to education and training (e.g., "training courses aimed at developing/encouraging environmental behavior"); two relate to employee empowerment (e.g., "engagement workshops or forums for staff to improve environmental behavior") and four relate to manager involvement (e.g., "actively championed by senior management"). The measurements were rated on a 5-point Likert scale ranging from never (1) to always (5).

3.2.2. Employees' Green Behavior in the Workplace

The measurement of employees' green behavior in the workplace by existing researchers mainly focuses on extra-role green workplace behavior; that is, the pro-environmental behavior which is not subjected to work norms and systems in the workplace. A few of studies include extra-role green workplace behavior and in-role green workplace behavior, but the in-role green workplace behavior still needs to be examined. Considering the definition of green behavior in the workplace as the research object, this paper selects the two-dimensional scale of Bissing-Olson et al. [51] for the in-role green workplace behavior and extra-role behavior. Three items examined the extra-role green workplace behavior, such as, "Today, I took a chance to get actively involved in environmental protection at work;" three items examine the in-role green workplace behavior, such as, "Today, I adequately completed assigned duties in environmentally friendly ways." The measurements were made using a 5-point Likert scale ranging from never (1) to always (5).

3.2.3. Information Need

This paper selected the scale of 5 items from Blok et al. [60] to measure the information need. One example is: "I want to be informed about the environmental impact of my behavior at work." The measurements were made using the 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7).

Control variables were gender, age, and work-unit size. Generally, gender and age were the common control variables because of their potential effects on employee green behavior or pro-environmental behavior [14,60,61]. While Paillé et al. [4] and Zibarras and Coan [25] suggest that organization size also has its potential effects on employee green behavior or pro-environmental behavior. In this study these three control variables were selected.

3.3. Data Analysis

This research analyzed the data using the Statistical Package for the Social Sciences (SPSS). The reliability for latent variables was tested by Cronbach's Alpha to confirm good internal correlation of each item in a scale. Table 1 presents the reliability for latent variables and each Cronbach's alpha for latent variable is above the acceptable value of 0.70. The influence of organization size on GHRM practices adopted by the organization was analyzed using the chi-square test to examine the differences among groups. Hypotheses are tested by hierarchical regression and path analysis. Furthermore, based on the mediating effect analysis procedure proposed by Zhao et al. [62], this study tests the effects of information need with reference to the bootstrap method proposed by Hayes [63] and Preacher et al. [64].

Table 1. Means (M), standard deviations (SD), and correlations of each variable.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Age	-										
2. Gender	0.84	-									
3. Unit properties	0.122	0.051	-								
4. Employee life cycle	0.070	−0.069	0.081	(0.83)							
5. Reward	0.108	0.198 **	0.121	0.714 **	(0.89)						
6. Education and training	0.043	0.078	0.131	0.696 ***	0.694 ***	(0.83)					
7. Employee empowerment	0.136	0.028	0.182**	0.615 ***	0.657 ***	0.807 ***	(0.84)				
8. Manager involvement	0.045	−0.058	0.127	0.628 ***	0.556 ***	0.754 ***	0.736 ***	(0.87)			
9. Information need	−0.087	−0.092	−0.139	0.173 **	−0.010	0.195 **	0.094	0.192 **	(0.87)		
10. In-role green workplace behavior	0.057	−0.105	0.072	0.230 **	0.150	0.223 **	0.232 **	0.275 **	0.251 **	(0.92)	
11. Extra-role green workplace behavior	0.017	−0.231 **	0.057	0.370 ***	0.269 ***	0.324 ***	0.229 ***	0.370 ***	0.393 ***	0.658 ***	(0.78)
M	30.68	0.45	5.35	2.530	2.280	2.306	2.059	2.517	5.259	3.246	3.384
SD	6.079	0.578	14.362	1.195	1.135	1.107	1.183	1.131	0.999	1.248	0.984

Note: $n = 145$; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$; Sex: (0) female and (1) male; unit properties: (1) state-owned enterprises, (2) foreign enterprises, (3) private enterprise, (4) government agencies/social organizations, (5) institutions, and (6) other. Reliabilities for latent variables (Cronbach's Alpha values) are reported in the parentheses on the diagonal.

4. Results

4.1. Descriptive Statistical Analysis

Table 1 shows the average, standard deviation, and intragroup correlation of the variables studied in this paper. Correlation analysis shows information need and GHRM practices (employee life cycle ($\gamma = 0.173$, $p < 0.05$), education and training ($\gamma = 0.195$, $p < 0.05$), manager involvement ($\gamma = 0.192$, $p < 0.05$)), in-role green workplace behavior ($\gamma = 0.251$, $p < 0.05$) and extra-role green workplace behavior ($\gamma = 0.393$, $p < 0.05$) are significantly related. GHRM practices have significant impacts on both in-role and extra-role green workplace behavior. The ABOVE results are basically in line with the research assumptions put forward in this study and provide initial support for the hypothesis verification below.

4.2. The Impact of an Organization's Scale on GHRM Practice

To explore the influence of an organization's size on GHRM practices adopted by the organization, this paper refers to the method of Zibarras and Coan [25], using the chi-square test to examine the differences among groups. The data for this study included a total of 145 organizations, of which 13 surveys were incomplete or not completed and were, therefore, not included in the analysis. Of those surveyed, 53.1% were grassroots staff, 31% were in middle-level positions, and 6.9% were to managers (9% data missing). Table 2 shows the demographic situations of the respondents and the organizations involved in the survey, including the respondent profile, the nature of the organization, and the size of the organization.

For the influencing factors of the difference of GHRM practices adopted among different organizations, this paper selects the variable of organization scale. It is generally believed that the resources that an organization can provide to support the environment increase with the size of the organization, such as training courses to expand the knowledge of employees in environmental protection. This paper uses Pearson's chi-square test and Clem's V value, the former of which indicates whether there is a correlation between the two variables, while the latter indicates the strength of the variable correlation relationship. Table 3 shows that the size of the organization affects the employee life cycle (promotion decisions) ($\chi^2 = 4.930$, $p = 0.026$, crv = 0.196) and employee empowerment (set up of green champions/task force/green team, etc.) ($\chi^2 = 5.429$, $p = 0.020$, crv = 0.206), while the impacts on the remaining areas were not significant. This can be explained by the fact that large organizations are more motivated for promotional decisions than small and medium-sized organizations, and on the

other hand, large organizational structures tend to be flexible and diversified, which is more conducive to the establishment and development of small informal organizations.

Table 2. Respondent and organization information of the survey sample.

Sample Distribution	N	Percentage
Respondent profile		
Top manager	10	6.9
Middle-level manager	45	31
Grassroots	77	53.1
Size (employees)		
Small (1–50)	30	20.7
Middle (51–250)	45	31.0
Large (251–2500)	40	27.6
Very large (2500 plus)	14	9.7
Unit properties		
State-owned enterprises	31	21.4
Foreign enterprises	8	5.5
Private enterprise	38	26.213
Government agencies/social organizations	13	9.0
Institutions	39	26.9
Other	3	2.1

Table 3. Green human resource management (GHRM) practices used at least sometimes by organizations to encourage employees to be pro-environmental, by organizational size.

% That Use GHRM Practice Used at Least Sometimes	Size	
	SME (N = 75)	Large (N = 54)
Employee life cycle		
Recruitment and selection criteria that recognize environmental behavior/commitment	58.1	70.4
Induction programs that emphasize environmental issues/concerns	58.9	66.7
Performance indicators/appraisal that include environmental behavior/targets	40.5	51.9
Promotion decisions	***25.7***	***44.4***
Rewards		
Individual incentives or reward programs that encourage environmental behavior	39.2	40.7
Team incentives or reward programs that encourage environmental Behavior	35.6	37.7
Organization-based incentives or bonus schemes that encourage environmental behavior	32.9	37.0
Penalties for noncompliance	52.7	61.1
Education and training		
Training courses aimed at developing/encouraging environmental Behavior	37.0	37.0
Encouraged via internal awareness-raising campaigns/publicity, etc., e.g., series of lectures/seminars/debates for employees, posters	43.2	55.6
Leadership/management training on environmental issues	45.9	48.1
Employee empowerment		
Engagement workshops or forums for staff to improve environmental Behavior	41.1	40.7
Set up of green champions/task force/green team, etc.	***29.7***	***50.0***
Manager involvement		
Actively championed by senior management	54.1	61.1
Informal encouragement by line management	43.2	53.7
Environmental impact factored into team/departmental budgets	41.9	44.4
In organizational vision/mission statement	41.9	56.6

Note: The significant correlation between the size of the organization and GHRM practices used is expressed as a percentage shown in italics and bold.

According to Zibarras and Coan's research [25], reward and employee authorization are greatly influenced by the size of the organization. The conclusion of that study is quite different from the result of this paper. There may be two reasons for the difference. One is the error caused by the small number of samples, and the other is the difference caused by the study of different situations.

4.3. Hypothesis Test

4.3.1. Direct Effect

For Hypothesis 1–5, the control variables (gender, age, and work-unit size) were first included in the regression equation; then, the influence of control variables on in-role green workplace behavior and extra-role green workplace behavior were analyzed; and then, the employee life cycle, reward, education and training, employee empowerment, and manager involvement were included in the regression equation. The regression results show that the employee life cycle ($\beta = 0.270$, $p < 0.01$), education and training ($\beta = 0.312$, $p < 0.01$), employee empowerment ($\beta = 0.274$, $p < 0.01$), and manager involvement ($\beta = 0.315$, $p < 0.01$) had a positively significant effect on the in-role green workplace behavior. Employee life cycle ($\beta = 0.345$, $p < 0.01$), reward ($\beta = 0.317$, $p < 0.01$), education and training ($\beta = 0.344$, $p < 0.01$), employee empowerment ($\beta = 0.210$, $p < 0.01$), and manager involvement ($\beta = 0.331$, $p < 0.01$) had a significant impact on extra-role green workplace behavior. Accordingly, H1, H2b, H3, H4, and H5 were verified. Aiming to address hypothesis 6, that is, the practice of GHRM on information need, in the case of control variables, those five kinds of GHRM practices were incorporated into the regression equation, and the results show that the employee life cycle ($\beta = 0.173$, $p < 0.05$), education and training ($\beta = 0.212$, $p < 0.05$), and manager involvement ($\beta = 0.216$, $p < 0.01$) have a significant impact on information need, so H6a, H6c, and H6e are supported. The examination result of H7 shows that, information need has significant impacts on both in-role green workplace behavior and extra-role green workplace behavior ($\beta = 0.350$, $p < 0.01$; $\beta = 0.384$, $p < 0.01$); accordingly, H7 is supported by the data.

Interestingly, in addition to hypothesis testing, the results revealed that GHRM practices have stronger effects on extra-role green workplace behavior than in-role green workplace behavior, as the regression coefficients between GHRM practices and extra-role behavior were bigger than those between GHRM practices and in-role behavior. Moreover, for extra-role green workplace behavior, employee life cycle and training have greater influence, while for in-role green workplace behavior, training and manager involvement have greater influences.

4.3.2. Mediating Effect

Based on the mediating effect analysis procedure proposed by Zhao et al. [62], we tested the effects of information need with reference to the bootstrap method proposed by Hayes [63] and Preacher et al. [64]. As shown in Table 4, The confidence interval was 95%, and in the way that the employee life cycle affects the in-role green workplace behavior through information need, the result interval of the test does not include 0 (LLCI = 0.0062, ULCI = 0.1047), indicating that the information need has a mediating effect on this path, and the size of the mediating effect is 0.0407. After controlling for information need, the effect of the self-variable employee life cycle on in-role green workplace behavior is still significant, and the interval does not include 0 (LLCI = 0.0327, ULCI = 0.3681), indicating that it is not a complete mediating effect. In the path of two kinds of GHRM practices, such as reward and employee empowerment, which affects the in-role green workplace behavior and the extra-role green workplace behavior respectively, the result interval of the test includes 0, which indicates that there is no mediating effect. The results of the test for all paths are summarized in Table 5. Information need has mediating effects on three kinds of GHRM practices: employee life cycle, education and training, and manager involvement influences in-role green workplace behavior and extra-role green workplace behavior; however, it does not act as a mediator between reward, employee empowerment and green behavior, so H8, H10, and H12 are supported.

Table 4. Bootstrap: The mediating effect test results of information need.

Dependent Variable	Independent Variable	Indirect Effects		Direct Effects	
		Estimated Value	95% Confidence Interval	Estimated Value	95% Confidence Interval
In-role green workplace behavior	Employee life cycle	0.041	[0.006, 0.105]	0.200	[0.033, 0.368]
	Reward	-	[−0.061, 0.045]	-	[−0.007, 0.343]
	Education and training	0.049	[0.007, 0.120]	0.202	[0.020, 0.385]
	Employee empowerment	-	[−0.016, 0.084]	0.222	[0.055, 0.388]
	Manager involvement	0.045	[0.009, 0.118]	0.259	[0.083, 0.436]
Extra-role green workplace behavior	Employee life cycle	0.048	[0.007, 0.110]	0.258	[0.137, 0.379]
	Reward	-	[−0.064, 0.060]	0.237	[0.110, 0.364]
	Education and training	0.059	[0.009, 0.128]	0.229	[0.095, 0.363]
	Employee empowerment	-	[−0.024, 0.092]	0.162	[0.036, 0.287]
	Manager involvement	0.056	[0.013, 0.120]	0.267	[0.139, 0.396]

Table 5. Results of regression equations.

H	Model	F	Sig	β	t	Sig	R Square	Adjusted R Square	Support
H1a	LC-T	2.664	0.036	0.270	2.795	0.006	0.080	0.050	Yes
H1b	LC-P	8.140	0.000	0.345	4.866	0.000	0.209	0.184	Yes
H2a	R-T	2.130	0.081	0.250	2.393	0.018	0.065	0.034	Yes
H2b	R-P	6.248	0.000	0.317	4.067	0.000	0.169	0.142	Yes
H3a	ET-T	3.094	0.018	0.312	3.081	0.003	0.091	0.062	Yes
H3b	ET-P	7.339	0.000	0.344	4.545	0.000	0.193	0.166	Yes
H4a	EE-T	2.726	0.032	0.274	2.838	0.005	0.081	0.052	Yes
H4b	EE-P	3.932	0.005	0.210	2.794	0.006	0.113	0.085	Yes
H5a	MI-T	3.290	0.013	0.315	3.203	0.002	0.097	0.067	Yes
H5b	MI-P	7.196	0.000	0.331	4.485	0.000	0.190	0.163	Yes
H6a	LC-IN	2.240	0.069	0.173	2.217	0.028	0.068	0.038	Yes
H6b	R-IN	0.973	0.425	0.003	0.038	0.970	0.031	−0.001	
H6c	ET-IN	2.686	0.034	0.212	2.578	0.011	0.080	0.050	Yes
H6d	EE-IN	1.545	0.193	0.118	1.490	0.139	0.048	0.017	
H6e	MI-IN	2.863	0.026	0.216	2.708	0.008	0.085	0.055	Yes
H7a	IN-T	3.348	0.012	0.350	3.266	0.001	0.097	0.068	Yes
H7b	IN-P	8.091	0.000	0.384	4.826	0.000	0.207	0.181	Yes

Note: The first Sig value is the F test result, and the second Sig value is the regression coefficient test result.

5. Discussion and Conclusions

Based on TAM, this paper constructs the influence mechanism model of GHRM practice on employee's green workplace behavior regarding the information need as a mediator. This model displayed the influence pathways of different kinds of GHRM practice on in-role and extra-role green behavior of employees in the workplace, and analyzed the mediating effect of information need in each pathway from the viewpoint of information systems. A questionnaire survey was conducted to test hypotheses in the model and most of them were validated by the generated findings of the study. This study also discusses theoretical contributions and the implications of these findings for practice, as well as study limitations and some directions for future research.

5.1. Findings

The specific findings are as follows. First, employee life cycle, education and training, employee empowerment, and management involvement all contribute significantly to in-role green workplace behavior and extra-role green workplace behavior; the reward only promotes extra-role green workplace behavior, and it has no significant impact on in-role green workplace behavior. Second, information need significantly promotes in-role green workplace behavior and extra-role green workplace behavior. Third, information need mediates the relationship between the employee life cycle, education and training, and manager involvement in these three types of GHRM practice and the employee's green workplace behavior. Finally, the employee life cycle, education and training, and manager involvement

play a role through the mediating effect of information need, in addition to acting directly on the in-role green workplace behavior and extra-role green workplace behavior. Reward directly acts on the extra-role green workplace behavior, and employee empowerment directly acts on the in-role green workplace behavior and extra-role green workplace behavior.

The results show that GHRM practice has a direct effect on in-role green workplace behavior and extra-role green workplace behavior of employees. This finding basically agrees with those of Dumont et al. [13] and Saeed et al. [14], showing the links of GHRM practice with employees' green behavior. While reward only directly promotes the extra-role green workplace behavior, and has no significant effect on the in-role green workplace behavior, that may be because in-role green workplace behavior is governed by organizational systems and policies; further, the implementation of work tasks in an environmentally friendly manner are seen as part of work responsibilities, and providing external incentives for this type of behavior can weaken an employee's intrinsic motivation. But the study has new findings that GHRM practices have greater impacts on extra-role green workplace behavior than in-role green workplace behavior, and for extra-role green workplace behavior, employee life cycle and training have greater influences, while for in-role green workplace behavior, training and manager involvement have greater influences.

GHRM practice can play a role in promoting the green behavior of employees in the workplace through the mediating effect of information need. Information need significantly influences in-role green workplace behavior and extra-role green workplace behavior which is consistent with the finding of Blok et al. [60]. In the recruitment process, organizations' scans are beginning to emphasize the concept of green environmental protection, conveying each organization's green concept to potential employees and establishing a green image of environmental protection in front of the public. For the active staff, the organization actively carries out environmental education and training, improving the environmental knowledge of employees and giving some informal encouragement, to convey to employees that having a green workplace is very important. Employees receive green information from the organization but also through the collection of information to supplement their own environmental knowledge, to become more aware of the importance of the green environment to individuals and organizations, and to then generate the need for relevant information. The need for employees to have information related to green behavior urges employees to collect information to make up for the difference between their own information and external information, to form a more comprehensive understanding of the organization's environmental strategic objectives, to clarify the important role of individuals in organizational environmental management, and to deepen their own understanding of green management and adopt green behavior. Rewards and employee empowerment do not act on green behavior through information need (i.e., rejected hypotheses H6b and H6d), which may be because too many rewards can weaken an employee's need to search for information autonomously; employee empowerment allows employees to improve environmental behavior in a hands-on manner, and employees' need for additional green knowledge is not strong. This study contributes to the literature on GHRM and green behavior in the workplace and provides implications for practices.

5.2. Theoretical Contributions and Practical Implications

This study extends the current research in the area by making several contributions. First, according to the TAM model, the research regards the information need as a mediator to investigate the impact of GHRM practices on the individual behavior of employees in the workplace. Theoretically, it is conducive to the improvement and enrichment of the field of GHRM and green behavior research, and at the same time, it realizes an interdisciplinary discussion in the field of HRM and IT/IS. Second, the study introduces information need as a mediator to investigate the impact of GHRM practices on employees' environmental behavior performance in the workplace, which contributes to the literature of exploring the underlying mechanism of such impact. This finding shows that the links among GHRM, information need, and employees' green behavior are consistent with expectations and some support findings in the extant literature. GHRM has an influence on employees' information need,

which is a new finding for the research from the TAM perspective. Third, the study reveals that different GHRM practices have different effects on the in-role and extra-role green behavior in the workplace which gives us a deep look inside GHRM. For example, employee life cycle, education and training, employee empowerment, and management involvement all contribute significantly to in-role and extra-role green workplace behavior, while the reward only promotes extra-role green workplace behavior; and employee empowerment has no indirect effects on employee green behavior through information need.

In practice, the research may provide more targeted recommendations for organizations seeking to sustainability improve GHRM practices from the viewpoint of the implementation of green HRM practices to improve practical effects. The results of this paper show that the organization should make full use of GHRM practices as a tool to actively convey the importance of green behavior to employees and cultivate the organization's green culture atmosphere. In carrying out human resources forecasting, human resources development planning, human resources strategic development planning, recruitment and selection, compensation management, performance management, and other activities, organizations should pay attention to the combination of green management and traditional management, implementing a green concept into every step.

In the recruitment and selection process, it is necessary to hire employees who match the environmental protection concept of the enterprise. Through the selection criteria, organizations convey the information of the corporate culture based on an environmental protection culture to the potential staff, promoting a reasonable match between the two sides of the labor. In the training of employee relations, the organization should work with employees to agree on and build a vision of environmental protection. The goal of environmental protection is based on the mutual recognition of both sides, while establishing a variety of communication and feedback channels to facilitate exchanges between the two sides. In making important decisions regarding salary plans and performance goals, the organization should include green behavior in the scope of the investigation, and it should constantly be shown to the staff that green behavior plays an important role in organizational decision-making. In summary, organizations should make full use of all kinds of communication and communication channels, pass on to employees—or exchange—environmental information and concepts, and give full play to the mediating role of information need. For example, the results indicate that management involvement has the strongest relationship with information need. Organizations could pay more attention to the role of top managers, which means environmental issues should not only be considered in organizational visions and mission statements but also actively championed by senior management. This study also finds that series of lectures, seminars, debates, and posters may be effective to make employee want to be informed about the environmental policy or projects on sustainability of the organization.

This study finds that reward and employee empowerment have no indirect effects on employees' green behavior through information need, the implication of which for managers is that policies such as incentives or reward programs for individuals or teams, organization-based incentives or bonus schemes that encourage employee green behavior, penalties for any noncompliance, workshops or forums for improving environmental behavior and set up of green team, etc., will work on their own. Employees do not need more information to know what to do.

5.3. Limitations and Future Research

Due to time and resource constraints, the research still has the following shortcomings. First, this paper only discusses the mediating function of the variable of information need, and future research should explore more possible mechanisms of action and perfect the research framework. Perceived usefulness and ease of use [30] may be two important variables for interpreting information demand intentions and perhaps have a stronger explanation for the information delivered by GHRM practices. Therefore future study is expected to examine whether these two variables are the better mediators other than the information need. Second, the effect of GHRM practice is usually affected by both the

executor and the environment, and this paper only considers the employee as the implementation factor, while future research can take the environmental factors into account and discuss the moderating effects of environmental factors and the interaction between environmental factors and individual factors. For example, Saeed et al. [14] points out that the boundary conditions to the influence of GHRM practice on employee green behavior should be given attention. Although the hypothesized model is supported mostly, the possible factors are neglected for the rejected hypotheses. In addition, employee green behavior in this study only takes such behavior as that performed by employees themselves into account, while encouraging and supporting other members of the organization to adopt green behavior are ignored. Future study would get more interesting findings if considering these limitations. Third, the effective sample used in this paper is 145, and there are some shortcomings in terms of quantity and coverage. Future research should expand the scope of the survey to supplement more survey samples of different organizational properties, such as industry, city, and size, in order to ensure representative and objective samples.

Environmental management in organizations is becoming a more and more prominent way to give full play to the role of GHRM to mobilize the willingness of every employee to participate in promoting the greening of office spaces, and this has become an important research issue. Based on TAM, and from the viewpoint of information systems, this paper analyzes the influence of GHRM practice on the green behavior of employees in the workplace and somewhat expands the application category of TAM. This study on the influence mechanism of GHRM practice from five dimensions provides a new idea and research method for the measurement of how green practices influence employee behavior. In addition, the mediator of information need is considered, in this research framework, to realize an interdisciplinary discussion.

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References

1. Ahmad, S. Green human resource management: Policies and practices. *Cogent Bus. Manag.* **2015**, *2*, 1–13. [CrossRef]
2. Robertson, J.L.; Barling, J. Greening organizations through leaders' influence on employees' pro-environmental behaviors. *J. Organ. Behav.* **2013**, *34*, 176–194. [CrossRef]
3. Guerci, M.; Longoni, A.; Luzzini, D. Translating stakeholder pressures into environmental performance—The mediating role of green HRM practices. *Int. J. Hum. Resour. Manag.* **2016**, *27*, 262–289. [CrossRef]
4. Paillé, P.; Chen, Y.; Boiral, O.; Jin, J. The impact of human resource management on environmental performance: Anemployee-level study. *J. Bus. Ethics* **2014**, *121*, 451–466. [CrossRef]
5. Tang, G.; Chen, Y.; Jiang, Y.; Paillé, P.; Jia, J. Green human resource management practices: Scale development and validity. *Asia Pac. J. Hum. Resour.* **2018**, *56*, 31–55. [CrossRef]
6. Ren, S.; Tang, G.Y.; Jackson, S.E. Green human resource management research in emergence: A review and future directions. *Asia Pac. J. Manag.* **2018**, *35*, 769–803. [CrossRef]
7. Haddock-Millar, J.; Sanyal, C.; Müller-Camen, M. Green human resource management: A comparative qualitative case study of a United States multinational corporation. *Int. J. Hum. Resour. Manag.* **2016**, *27*, 192–211. [CrossRef]

8.   Owino, W.A.; Kwasira, J. Influence of selected green human resource management practices on environmental sustainability at Menengai Oil Refinery Limited Nakuru, Kenya. *J. Hum. Resour. Manag.* **2016**, *4*, 19. [CrossRef]

9.   Gholami, H.; Rezaei, G.; Saman, M.Z.M.; Sharif, S.; Zakuan, N. State-of-the-art Green HRM System: Sustainability in the sports center in Malaysia using a multi-methods approach and opportunities for future research. *J. Clean. Prod.* **2016**, *124*, 142–163. [CrossRef]

10. Labgat, B. Influence of green human resource management practices on environmental sustainability at Kenyatta University, Kenya. *Int. J. Econ. Commer. Manag.* **2016**, *4*, 986–1003.

11. Zhang, T.M. On the strategy and prospect of Green Human Resource Management. *Hum. Resour. Manag.* **2018**, *2*, 41.

12. Ruepert, A.; Keizer, K.; Steg, L.; Maricchiolo, F.; Carrus, G.; Dumitru, A.; García Mira, R.; Stancu, A.; Moza, D. Environmental considerations in the organizational context: A pathway to pro-environmental behaviour at work. *Energy Res. Soc. Sci.* **2016**, *17*, 59–70. [CrossRef]

13. Dumont, J.; Shen, J.; Deng, X. Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values. *Hum. Resour. Manag.* **2017**, *56*, 613–627. [CrossRef]

14. Saeed, B.B.; Afsar, B.; Hafeez, S.; Khan, S.; Tahir, M.; Afridi, M.A. Promoting employee's proenvironmental behavior throughgreen human resource management practices. *Corp. Soc. Responsib. Environ. Manag.* **2019**, *26*, 424–438. [CrossRef]

15. Zhou, J.F.; Zhang, G.L. Green human resource management on employees' green behavior: A model from a self-determination theory perspective. *Hum. Resour. Dev. China* **2018**, *35*, 20–30.

16. Temminck, E.; Mearns, K.; Fruhen, L. Motivating employees towards sustainable behaviour. *Bus. Strategy Environ.* **2015**, *24*, 402–412. [CrossRef]

17. Ramus, C.A.; Killmer, A.B.C. Corporate greening through prosocial extrarole behaviours—A conceptual framework for employee motivation. *Bus. Strategy Environ.* **2007**, *16*, 554–570. [CrossRef]

18. Paillé, P.; Boiral, O.; Chen, Y. Linking environmental management practices and organizational citizenship behaviour for the environment: A social exchange perspective. *Int. J. Hum. Resour. Manag.* **2013**, *24*, 3552–3575. [CrossRef]

19. Boiral, O.; Talbot, D.; Paillé, P. Leading by example: A model of organizational citizenship behavior for the environment. *Bus. Strategy Environ.* **2015**, *24*, 532–550. [CrossRef]

20. Greaves, M.; Zibarras, L.D.; Stride, C. Using the theory of planned behavior to explore environmental behavioral intentions in the workplace. *J. Environ. Psychol.* **2013**, *34*, 109–120. [CrossRef]

21. Graves, L.M.; Sarkis, J.; Zhu, Q. How transformational leadership and employee motivation combine to predict employee proenvironmental behaviors in China. *J. Environ. Psychol.* **2013**, *35*, 81–91. [CrossRef]

22. Unsworth, K.L.; Dmitrieva, A.; Adriasola, E. Changing behaviour: Increasing the effectiveness of workplace interventions in creating pro-environmental behaviour change. *J. Organ. Behav.* **2013**, *34*, 211–229. [CrossRef]

23. Stern, P.C. Information, incentives, and proenvironmental consumer behavior. *J. Consum. Policy* **1999**, *22*, 461–478. [CrossRef]

24. Francoeur, V.; Paillé, P.; Yuriev, A.; Boiral, O. The measurement of green workplace behaviors: A systematic review. *Organ. Environ.* **2019**, 1–25. [CrossRef]

25. Zibarras, L.D.; Coan, P. HRM practices used to promote pro-environmental behavior: A UK survey. *Int. J. Hum. Resour. Manag.* **2014**, *26*, 2121–2142. [CrossRef]

26. Davis, F.D.; Bagozzi, R.P.; Warshaw, P.R. User acceptance of computer technology: A comparison of two theoretical models. *Manag. Sci.* **1989**, *35*, 903–1028. [CrossRef]

27. Ibrahim, R.; Yusoff, R.C.M.; Khalil, K.; Jaafar, A. Factors affecting undergraduates' acceptance of educational game: An application of Technology Acceptance Model (TAM). In Proceedings of the Visual Informatics: Sustaining Research and Innovations, Selangor, Malaysia, 9–11 November 2011; pp. 135–146.

28. Min, Q.F.; Liu, Z.H.; Ji, S.B. A meta-analysis of it adoption study. *China J. Inf. Syst.* **2008**, *2*, 22–32.

29. Kung-Teck, W.; Osman, R.B.; Pauline Swee Choo, G.; Rahmat, M.K. Understanding student teachers' behavioural intention to use technology: Technology Acceptance Model (TAM) validation and testing. *Int. J. Instr.* **2013**, *6*, 89–104.

30. Legris, P.; Ingham, J.; Collerette, P. Why do people use information technology? A critical review of the technology acceptance model. *Inf. Manag.* **2003**, *40*, 191–204. [CrossRef]

31. Hajiha, A. The role of perceived value on customer e-shopping intention using Technology Acceptance Model, (TAM). In Proceedings of the IEEE International Conference on Industrial Engineering & Engineering Management, Singapore, 6–9 December 2015.

32. Heijden, H.V.D. Factors influencing the usage of websites: The case of a generic portal in the Netherlands. *Inf. Manag.* **2003**, *40*, 541–549. [CrossRef]

33. Davis, F.D. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* **1989**, *12*, 319–340. [CrossRef]

34. Rauniar, R.; Rawski, G.; Yang, J.; Johnson, B. Technology acceptance model (TAM) and social media usage: An empirical study on Facebook. *J. Enterp. Inf. Manag.* **2014**, *27*, 6–30. [CrossRef]

35. Venkatesh, V.; Davis, F.D. A theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Manag. Sci.* **2000**, *46*, 186–204. [CrossRef]

36. Pavlou, P.A. Consumer acceptance of electronic commerce: Integrating trust and risk with the Technology Acceptance Model. *Int. J. Electron. Commer.* **2003**, *7*, 101–134.

37. Ha, S.; Stoel, L. Consumer e-shopping acceptance: Antecedents in a technology acceptance model. *J. Bus. Res.* **2009**, *62*, 565–571. [CrossRef]

38. Pikkarainen, T.; Pikkarainen, K.; Karjaluoto, H.; Pahnila, S. Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Res.* **2004**, *14*, 224–235. [CrossRef]

39. Tao, D. Intention to use and actual use of electronic information resources: Further exploring Technology Acceptance Model (TAM). In Proceedings of the American Medical Informatics Association Annual Symposium, San Francisco, CA, USA, 14–18 November 2009.

40. Wu, J.; Wang, S. What drives mobile commerce? An empirical evaluation of the revised technology acceptance model. *Inf. Manag.* **2005**, *42*, 719. [CrossRef]

41. Koo, C.; Chung, N.H.; Nam, K. Assessing the impact of intrinsic and extrinsic motivators on smart green IT device use: Reference group perspectives. *Int. J. Inf. Manag.* **2015**, *35*, 64–79. [CrossRef]

42. Koo, C.; Chung, N.H. Examining the eco-technological knowledge of smart green IT adoption behavior: A self-determination perspective. *Technol. Soc. Chang.* **2014**, *88*, 140–155. [CrossRef]

43. Renwick, D.W.S.; Redman, T.; Maguire, S. Green human resource management: A review and research agenda. *Int. J. Manag. Rev.* **2013**, *15*, 1–14. [CrossRef]

44. Zhang, L.Y. Review and prospect of research on green human resource management. *China Circ. Econ.* **2018**, *34*, 75–76.

45. Shah, M. Green human resource management: Development of a valid measurement scale. *Bus. Strategy Environ.* **2019**, *28*, 771–785. [CrossRef]

46. Bombiak, E.; Marciniuk-Kluska, A. Green human resource management as a tool for the sustainable development of enterprises: Polish young company experience. *Sustainability* **2018**, *10*, 1739. [CrossRef]

47. Hosain, M.S.; Rahman, M.S. Green human resource management: A theoretical overview. *IOSR J. Bus. Manag.* **2016**, *18*, 54–59.

48. Pinzone, M.; Guerci, M.; Lettieri, E.; Redman, T. Progressing in the change journey towards sustainability in healthcare: The role of 'Green' HRM. *J. Clean. Prod.* **2016**, *122*, 201–211. [CrossRef]

49. Paillé, P.; Mejía-Morelos, J.H. Antecedents of pro-environmental behaviours at work: The moderating influence of psychological contract breach. *J. Environ. Psychol.* **2014**, *38*, 124–131. [CrossRef]

50. Norton, T.A.; Parker, S.L.; Zacher, H.; Ashkanasy, N.M. Employee green behavior. *Organ. Environ.* **2015**, *28*, 103–125. [CrossRef]

51. Bissing-Olson, M.J.; Iyer, A.; Fielding, K.S.; Zacher, H. Relationships between daily affect and pro-environmental behavior at work: The moderating role of pro-environmental attitude. *J. Organ. Behav.* **2013**, *34*, 156–175. [CrossRef]

52. Norton, T.A.; Zacher, H.; Ashkanasy, N.M. Organisational sustainability policies and employee green behaviour: The mediating role of work climate perceptions. *J. Environ. Psychol.* **2014**, *38*, 49–54. [CrossRef]

53. Kim, A.; Kim, Y.; Han, K.; Jackson, S.E.; Ployhart, R.E. Multilevel influences on voluntary workplace green behavior. *J. Manag.* **2017**, *43*, 1335–1356.

54. Jia, J. Influencing Mechanism of Environmentally-Specific Transformational Leadership on Organizational Citizenship Behavior for the Environment: Cross-Level Moderating Role of Green Human Resource Management. Ph.D. Thesis, Southwestern University of Finance and Economics, Chengdu, China, 2016.

55. Chen, L. The Mechanism of Green Human Resource Management on Employees' Green Behaviors. Master's Thesis, Shandong University, Jinan, China, 2018.

56. Sun, Y.F.; Zhang, Y.; Zhou, Z.L. On the influencing factors of college students' information needs based on the hierarchy of information needs theory. *J. Intell.* **2015**, *34*, 190–194.

57. Zhang, X.; Wang, F. Investigation and cause analysis on government information needs of individuals based on the Sense-making Theory. *Libr. Infor. Serv.* **2017**, *3*, 53–60.

58. Moshfeghi, Y.; Triantafillou, P.; Pollick, F.E. Understanding information need: An fMRI study. In Proceedings of the 39th International ACM SIGIR conference on Research and Development in Information Retrieval, Pisa, Italy, 17–21 July 2016; pp. 335–344.

59. Bruce, H. Personal anticipated information need. *Inf. Res.* **2005**, *10*, 232.

60. Blok, V.; Wesselink, R.; Studynka, O.; Kemp, R. Encouraging sustainability in the workplace: A survey on the pro-environmental behaviour of university employees. *J. Clean. Prod.* **2015**, *106*, 55–67. [CrossRef]

61. Afsar, B.; Badir, Y.; Kiani, U.S. Linking spiritual leadership and employee pro-environmental behavior: The influence of workplace spirituality, intrinsic motivation, and environmental passion. *J. Environ. Psychol.* **2016**, *45*, 79–88. [CrossRef]

62. Zhao, X.; Lynch, J.G., Jr.; Chen, Q. Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *J. Consum. Res.* **2010**, 197–206. [CrossRef]

63. Hayes, A. Introduction to mediation, moderation, and conditional process analysis. *J. Educ. Meas.* **2013**, *51*, 335–337.

64. Preacher, K.J.; Rucker, D.D.; Hayes, A.F. Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivar. Behav. Res.* **2007**, *42*, 185–227. [CrossRef] [PubMed]