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Encouraging water pollution control in the workplace: a survey on the pro-environmental behavior of employees

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ABSTRACT

This paper intends to present that an institutional environment may impact on employee pro-environmental behavior, which contributes to the field of water pollution control. A set of hypotheses are developed for proving that the healthier institutional environment the better pro-environmental behavior from employees. At the same time, the other presumption belongs to environmental concern mediated the relation between institutional environment dimensions and employee pro-environmental behavior. A survey was conducted by involving 192 employees from 5 chemical plants that produce waste water, which acquired a set of factors for measuring institutional environment, employee pro-environmental behavior and environmental concern. Our empirical results demonstrated several interesting findings: 1) good institutional environment dimensions positively empower the employee pro-environmental behavior; 2) the relationship between institutional environment dimensions and employee pro-environmental behavior can be partially mediated by environmental concern. The findings also encourage organizations to invest on the institutional environment which supports the improvement of employee pro-environmental behavior to control water pollution.

Keywords: Pro-environmental behavior, Institutional environment, Environmental concern, Water pollution control

1. Introduction

China's economy has developed rapidly since the 1970s. Urbanization and industrialization have always accompanied with severe water pollution, so the government has taken some measures to prevent and control the water pollution [1]. Industrial wastewater including harmful materials has poor biodegradability and high toxicity [2]. If not treated, it will be discharged directly into water, which will induce adverse influence to human health and environment [3]. Pollution control in workplace is the key to water pollution control [4]. In the past 40 years, many studies have focused on the adverse influence of human beings on earth's carrying-capacity [5]. It is recognized that increasing water pollution is caused by human behavior [6]. Therefore, many countries' governments have formulated policies that limit industrial pollution, reduce pollution water. Research has also focused on developing a more sustainable lifestyle in workplace [7].

This posed the question about what kind of factors influence sustainable behavior and how it can be improved. The pro-environmental behavior (PEB) appeared to study this. On the basis of a scientific literature research, pro-environmental behavior is defined as a behavior that minimizes the adverse influence of individual practices on the environment, which is necessary for pollution control [8]. Many researchers proposed different terminologies to describe similar types of pro-environmental behavior, but all of the researches have been used to explain PEB in households, while PEB in the workplace has not been or not fully considered in current study.

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Aiming at promoting PEB's ability to control water pollution in workplace, this study concentrates on peculiar factors that can improve PEB in workplace. The existing literature showed that institutional environment will have positive influence organizational behavior [9]. Drawing upon the institutional theories, the paper introduces a model which empirically analyses the hypotheses and then interprets the relationship between an institutional environment (with the dimensions of regulatory, normative, and cognitive environment) and employee pro-environmental behavior. From this perspective, the model is verified through testing mediation effect of environmental concern, which refers to the level that human beings are conscious of environmental issues and supporting attempts to deal with these problems [10], on relationship between institutional environment dimensions and employee pro-environmental behavior. A conclusion is drawn with recommendations for the future work.

1.1. Institutional environment

Institutional theory is broadly used in the research of different kinds of organizational behaviors, like voluntary environmental management practices [11], and corporate energy-saving activities [12]. According to this theory, the behavior and structure of an organization are affected by institutional environment included government, rivals and trade associations [13]. In institutional theory perspective, organizations are viewed as open systems that depend on the impacts of special environments. The theory stresses institutional environment plays an important role in driving organizational decisions, behaviors and changes to gain social legitimacy. More specifically, the institution, which includes regulatory, normative and cognitive factors, embodies the characteristics of social structure. Thus, drew on the Scott's version to classify the institutional environment, which includes regulatory institutional environment, normative institutional environment, and cognitive institutional environment.

1.1.1. Regulatory institutional environment and employee pro-environmental behavior

The regulatory institution refers to various laws, regulations and policies made by series of authoritative organizations such as the government, which reveals the influence of the institutional environment established by the government [13]. With the increasing importance of water pollution control, regulatory institutional environment is thought to be an important force to encourage firms taking water pollution control measures. As Dimmaggio and Powell said, regulatory institutional environment could be considered as persuasion more than force brought to organizations [13], it is believed that incentive instruments can be the component of regulatory institution [14]. Therefore, the regulatory institution is also a reward and punishment mechanism. If the employees defy the regulations and never follow any water pollution control rules, the enterprise will be punished and will damage its fame and competitive ability. In that case, employees must agree regulations and follow pro-environmental behavior. Therefore, the following hypothesis is presented:

H1a: Regulatory institutional environment positively relates to employee pro-environmental behavior.

1.1.2. Normative institutional environment and employee pro-environmental behavior

Normative institutional environment, which is primarily derived from professionalization, mainly refers to a standardized environment formed both by the enterprise's recognition mechanism of media and trade association [13]. The high adoption rate of pro-environmental practices in the industry will form institutional norms [15] and shape a fundamental understanding between firms to affect employees' decision-making process towards water pollution control. Generally, trade association is an authoritative organization, which forms a universally accepted industry norm by establishing various industry standards. Members participating the association are affected to behave in normative way. Therefore, it is easily for employees to get information about water pollution control and to adopt pro-environmental activities confidently. In addition, the attention from media puts great pressure on firms. If firms' employees behave ecologically unfriendly, once exposed, the firms' identity and prestige will suffer greatly. All of the things above will lead to enterprise's rectification of violation behavior and adaptation of pro-environmental behavior to control water pollution. Employees are responsible for firms' reputation and image. In the normative institutional environment, employees will attach great importance to improve themselves' pro-environmental behavior. Therefore, the following hypothesis is presented:

H1b: Normative institutional environment positively relates to employee pro-environmental behavior.

1.1.3. Cognitive institutional environment and employee pro-environmental behavior

Cognitive institutional environment is an informal rule which is mainly composed of moral criterion, value form and custom [13]. The cognitive institutional environment plays a restrictive role mainly through mimetic mechanism, which drives organizations to mimic successful doings of other structurally equal organizations. The mimetic mechanism's root cause is uncertainty. When uncertainty is generated in the environment, or the high-risk condition is badly comprehended, organizations tend to regulate the conducts against their peers, and imitate those appearing legitimate and progressive. When a competitor takes a successful action, the firm will imitate good practices to catch up with famous corporates. The existence of this cognitive institutional environment will motivate the willingness of firm's pro-environmental practice to control water pollution. Then, in order to get more benefits, the employees will be required to take corresponding pro-environmental behavior to control water pollution. Therefore, the following hypothesis is formulated:

H1c: Cognitive institutional environment positively relates to employee pro-environmental behavior.

1.2. Environmental concern

An example of definition for environmental concern is "ranging from a peculiar attitude toward environmental related behavior to a more inclusive value orientation" [16]. Numerous studies have recognized and supported the positive effect that EC is likely to have on PEB [17–19]. An explanation of this relationship is that being aware and knowledgeable about environmental problems is a precondition for the development of moral norms [17], which lead individuals to adopt pro-social behaviors, in our case behaviors that control the water pollution in workplace. Studies provide evidence regarding the influence of EC on the adoption of broad environmental behaviors [20], as well as specific ones, such as energy saving [21], green purchases [22], recycling [23] and the choice of ecological transportation [23,24]. Besides, Psychological and environmental concern research has identified institutional factors as a source of influence on employee environmental concern [12] and these concerns are verified to have a relationship with pro-environmental behavior [25]. These relationships are posited to be valid in workplaces and suggest examination of institutional environment, environmental concern and pro-environmental behavior in workplaces. Thus, the following hypothesis is presented:

H2a: Environmental concern mediates the relationship between regulatory institutional environment and pro-environmental behavior of employees;

H2b: Environmental concern mediates the relationship between normative institutional environment and pro-environmental behavior of employees;

H2c: Environmental concern mediates the relationship between cognitive institutional environment and pro-environmental behavior of employees.

2. Methodology

This study aims at developing a model which can be used to analyze {H1, H2}, so that how an institutional environment influences employee pro-environmental behavior to control water pollution can be assessed. We are also aiming to look into whether environmental concern mediates the effect of institutional environment on employee pro-environmental behavior to control water pollution. This research collected data from research participants by using the questionnaire.

2.1. Participants and procedure

The survey was conducted from March 2016 to July 2017. Chemical plants in center of China were involved. Because China is one of the world chemical plant and plays an important role in world chemical industries. Participants were collected by many means including e-mail, personal visits and an online survey. 279 responses were returned and 192 responses from 5 chemical plants were selected to be valid for further analysis. The subjects' demographics are as follows: 63% are women, 37.5% are younger than the age of 25, 27.1% are between the ages of 26–35, 23.4% are between the ages of 36–45 while 11.5% are 46–55, and 0.5% are more elderly than the age of 55. Moreover, 60.7% of these respondents possess a university degree. Concerning employee positions, 17.2% do job as managers, 53.6% are staffs, and 29.2% are other personnel.

2.2. Measures

On the basis of the study on the structural dimension of the institutional environment, this paper uses 3 items to measure the Regulatory Institutional Environment, 3 items to measure the Normative Institutional Environment, and 4 items to measure the Cognitive Institutional Environment (see Table 1) [26]. Considering that the present study focuses on PEB in the work setting, we should learn from the scales developed by Lu and Liu [27]. The new structure was comprised of two components: "Pu-PEB" described public behavior and contained 5 items (see Table 1), while "Pr-PEB" described private behavior and also contained 5 items (see Table 1). EC is measured with 4 items (see Table 1) used by Lee and Kim [20]. All of the items were assessed by a 5-point Likert scale.

3. Results and discussion

After collecting data, SPSS 20.0 software was used to analyze it. We firstly used a Chronbach's Alpha test and factor analysis. Then the relations between different variables were checked through correlation analysis. Lastly, several mediation analyses were conducted to check whether environmental concern mediates the impact of different institutional environment dimensions on employee pro-environmental behavior to control water pollution.

3.1. Preliminary analyses

The results of reliability and validity are shown in Table 2. We find out that the Cronbach's alpha values are over 0.7 in individual constructs, demonstrating acceptable reliability. Additionally, we conducted factor analysis. The KMO value is 0.948 (over 0.7) and Table 2 shows that all factor loadings are over 0.5, allowing us to conclude that the construct validity of scale is acceptable.

Different variables' correlation analysis showed significant linkages between the sub-dimensions of institutional environment and employee pro-environmental behavior (see Table 3). Employee pro-environmental behavior obtained a significant link with three sub-dimensions of institutional environment, namely, regulatory institutional environment ($r = 0.502$, $p < 0.01$) normative institutional environment ($r = 0.559$, $p < 0.01$), and cognitive institutional environment ($r = 0.553$, $p < 0.01$). Additionally, environmental concern gained a significant linkage with three sub-dimensions of institutional environment, namely, regulatory institutional environment ($r = 0.656$, $p < 0.01$) normative institutional environment ($r = 0.641$, $p < 0.01$), and cognitive institutional environment ($r = 0.747$, $p < 0.01$).

Table 1
Variables and measures

Variables	Items	Sources
Regulatory Institutional environment (RIE)	RIE1. The government has made sound, authoritative water pollution governance laws and regulations and other policies	[26]
	RIE2. The government has taken incentive measures to promote the pro-environmental behavior to control water pollution	
	RIE3. The government has disseminated the importance of taking pro-environmental behavior to control water pollution through various ways	
Normative Institutional environment (NIE)	NIE1. In order to be recognized by trade associations, the firm encourages employees to take pro-environmental behavior to control water pollution	
	NIE2. In order to be recognized by the media, the firm encourages employees to take pro-environmental behavior to control water pollution	
	NIE3. The firm is willing to imitate a firm who has most complete pro-environmental measures to control water pollution	
Cognitive Institutional Environment (CIE)	CIE1. Pro-environmental benchmarking firms have a profound impact on the firm	
	CIE2. The firm pays close attention to the effective measures of employees' pro-environmental behavior to control water pollution in industry	
	CIE3. The firm who carries out pro-environmental measures to control water pollution will get good economic benefits	
	CIE4. The firm in the industry that have taken pro-environmental measures to control water pollution are more competitive	
Private-sphere PEB	PEB1. Sort pollutant into proper recycling receptacle in workplace	[27]
	PEB2. Change office equipment use practices to control water pollution	
	PEB3. Reuse water in the office	
	PEB4. Purchase green office products and service to control water pollution whenever possible	
	PEB5. Maintain office equipment	
Public-sphere PEB	PEB6. Belong to an environmental or conservation protection group to control water pollution	
	PEB7. Make suggestions about environmental protection practices for managers to control water pollution	
	PEB8. Remind and persuade colleagues to control water pollution at the workplace	
	PEB9. Support positive implementation of national and organizational water pollution controlling policies	
	PEB10. Participate in group campaigns concerning water pollution issues (e.g., petitioning)	
Environmental concern	EC1. If things keep their present condition, it will be soon to experience a water pollution catastrophe	[20]
	EC2. Humans are severely abusing the water resources	
	EC3. The balance of water resources is very delicate	
	EC4. Humans are prone to serious risks if they upset the laws of water pollution	

3.2. Mediation analyses

Here, we examined whether the environmental concern was mediator of the relationship between sub-dimensions of institutional environment and employee pro-environmental behavior to control water pollution.

3.2.1. Regulatory institutional environment, environmental concern and employee pro-environmental behavior

From the results, it is showed that environmental concern partially mediated effect of regulatory institutional environment on employee pro-environmental behavior to control water pollution. Regulatory institutional environment could significantly predict a sound environmental concern ($\beta = 0.754$, $t = 110.974$, $p = 0.000$, $R^2 = 0.430$) and a good employee pro-environmental behavior ($\beta = 0.526$, $t = 8.006$, $p = 0.000$, $R^2 = 0.252$). This is in line with hypothesis 1a. Likewise, environmental concern could predict a good employee pro-environmental behavior significantly ($\beta = 0.534$, $t = 9.975$, $p = 0.000$, $R^2 = 0.344$). When we controlled environmental concern, the effect of regulatory institutional environment fell off, but stayed significantly ($\beta = 0.216$, $t = 2.698$, $p = 0.008$, $R^2 = .368$). Namely, environmental concern did not totally cancel out the influence of regulatory institutional environment, which partially explains the employee pro-environmental behavior to control water pollution (see Fig. 1). This is in line with hypothesis 2a.

3.2.2. Normative institutional environment, environmental concern and employee pro-environmental behavior

The results showed that environmental concern partially mediated the relation between normative institutional environment and employee pro-environmental behavior to control water pollution. Normative institutional environment could significantly predict a sound environmental concern ($\beta = 0.666$, $t = 11.514$, $p = 0.000$, $R^2 = 0.411$) and a good employee pro-environmental behavior ($\beta = 0.529$, $t = 9.284$, $p = 0.000$, $R^2 = 0.312$). This is in line with hypothesis 1b. When controlling environmental concern, the influence of normative institutional environment on employee pro-environmental behavior decreased, but stayed significantly ($\beta = 0.353$, $t = 5.277$, $p = 0.000$, $R^2 = 0.400$). Namely, environmental concern could not totally the eliminate effect of normative institutional environment, which partially explains employee pro-environmental behavior to control water pollution (see Fig. 2). This last result confirms our hypothesis 2b.

Table 2
Results of reliability and validity

Variables	Items	Factor loading	Cronbach's a
Regulatory Institutional environment (RIE)	RIE1	0.656	0.779
	RIE2	0.679	
	RIE3	0.571	
Normative Institutional environment (NIE)	NIE1	0.787	0.858
	NIE2	0.767	
	NIE3	0.656	
Cognitive Institutional Environment (CIE)	CIE1	0.659	0.909
	CIE2	0.630	
	CIE3	0.651	
	CIE4	0.616	
Pro-environmental Behavior (PEB)	PEB1	0.531	0.890
	PEB2	0.635	
	PEB3	0.772	
	PEB4	0.742	
	PEB5	0.732	
	PEB6	0.790	
	PEB7	0.836	
	PEB8	0.817	
	PEB9	0.807	
	PEB10	0.742	
Environmental concern(EC)	EC1	0.793	0.947
	EC2	0.765	
	EC3	0.798	
	EC4	0.771	

3.2.3 Cognitive institutional environment, environmental concern, and employee pro-environmental behavior

Here, we introduced cognitive institutional environment as the predicting variable. The results proved that environmental concern partially mediated the influence of cognitive institutional environment on employee pro-environmental behavior to control water pollution (see Fig. 3). In this case, cognitive institutional environment predicted environmental concern ($\beta = 0.712$, $t = 15.505$, $p = 0.000$, $R^2 = 0.559$), and employee pro-environmental behavior ($\beta = 0.480$, $t = 9.158$, $p = .000$, $R^2 = 0.306$). This supports hypothesis 1c. When controlling environmental concern, the impact of cognitive institutional environment on employee pro-environmental behavior was significant ($\beta = 0.227$, $t = 4.514$, $p = 0.003$, $R^2 = 0.374$). These results show that environmental concern indicates a significant partial mediation effect. Our hypothesis 2c is confirmed by these last results.

3.3. Discussion

Our hypotheses were confirmed by the study results, as expected. Our study verified that a relationship between institutional environment and environmental concern. Multiple regression analyses found support for this relationship. The result showed the great significance to strength water pollution control and reduce the environmental unfriendly behavior of the employees from the institutional perspective. Thus, perfect regulatory policies, the supervision of non-governmental organizations and the improvement of corporate environmental awareness can provide effective guidance and support for controlling water pollution of firms.

The current study is one, though a quite promising study in a real-life situation, aiming at discussing the relationship between institutional environment dimensions and employee pro-environmental behavior to control water pollution. Our conclusion suggests that more investment in institutional environment should be encouraged in chemical firms to control water pollution. From a managerial viewpoint, this work demonstrates that instituting good institutional environments and creating better workplace environmental concern are both valid approaches

Table 3
Correlations between the main variables of the representative sample (n = 192)

Variable	1	2	3	4	5
1. Regulatory institutional environment	–				
2. Normative institutional environment	0.689**	–			
3. Cognitive institutional environment	0.673**	0.725**	–		
4. Environmental concern	0.656**	0.641**	0.747**	–	
5. Employee pro-environmental behavior	0.502**	0.559**	0.553**	0.586**	–

**p< 0.01

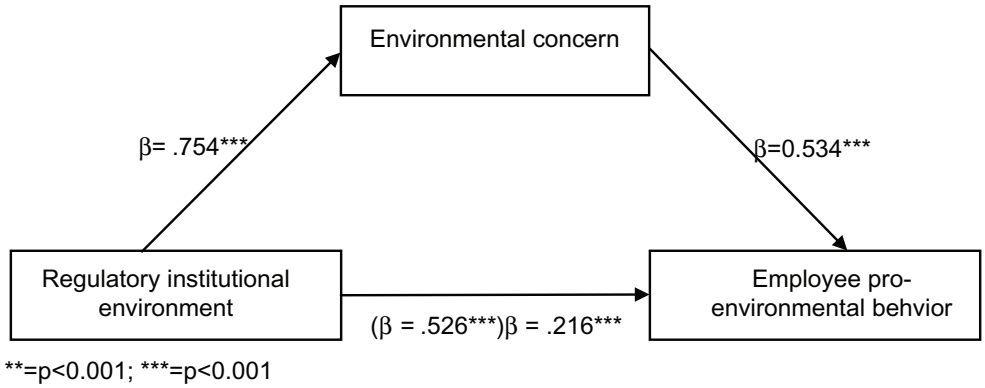

Fig. 1. Mediation test of the effect of regulatory institutional environment on employee pro-environmental behavior by environmental concern.

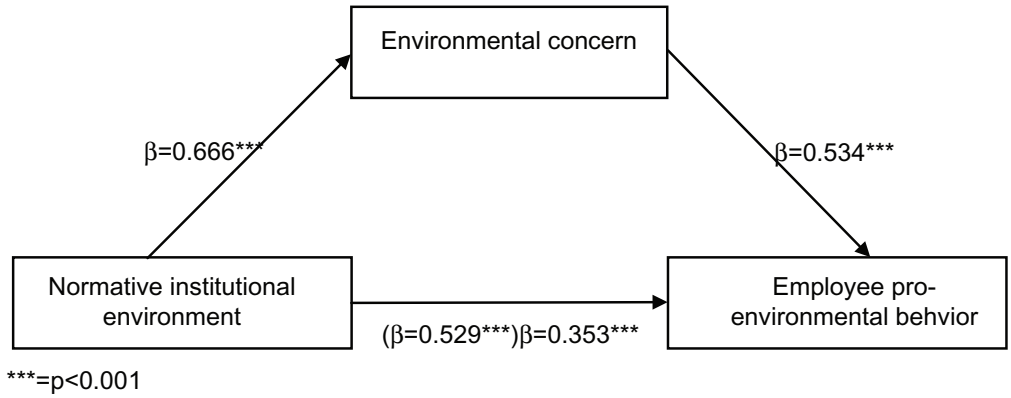

Fig. 2. Mediation test of the effect of normative institutional environment on employee pro-environmental behavior by environmental concern.

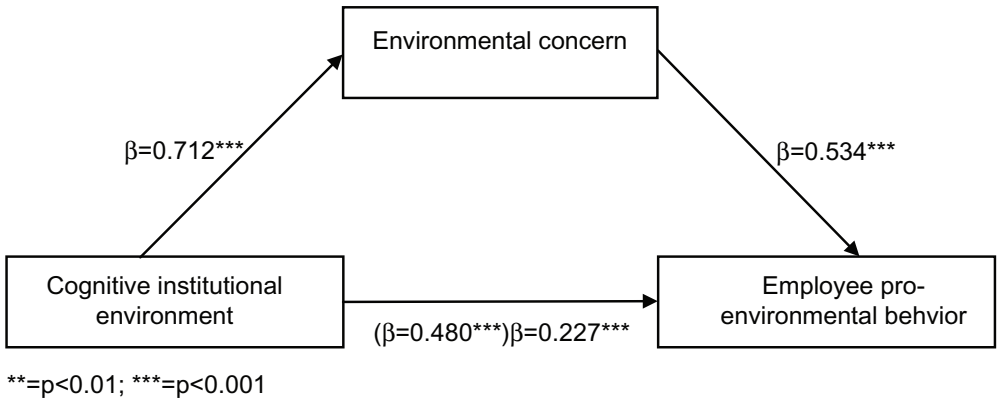

Fig. 3. Mediation test of the effect of cognitive institutional environment on employee pro-environmental behavior by environmental concern.

for improving the employee pro-environmental behavior of firms to control water pollution. Thus, a firm's decision-makers can identify these valid approaches to conduct institutional environment related activities, and to effectively redefine strategic decision-making to embrace these concepts. Firstly, our findings reveal that better institutional environment can improve employee pro-environmental behavior of firms to control water pollution, thereby obtaining better wastewater controlling effect. In this regard, managers need to see that their institutional environment related efforts are a key variable to improve employee pro-environmental behavior when making strategic decisions. Secondly, the institutional environment is also a vital factor that influences the effect and passion of firms to

improve environmental concern. Given the fact that good institutional environmental management may become a special competitive advantage for firms, our findings can assist managers improve the institutional environments and improve environmental concern.

This study provides a key theoretical framework for water pollution management. However, the limitations should be addressed, which could lead to possible future research. First, we examine the indirect roles of environmental concern on relationship between different institutional environment dimensions and employee pro-environmental behavior to control water pollution. There may be other factors or other variables that might also influence the relationship between institutional environment and employee pro-environmental behavior. Future research could address some of these other factors as well in order to explore this topic further. Second, the Likert scale we use to assess the items of constructing is indeed affected by flaws in its measurement and the inherent deficiencies of the survey method.

4. Conclusion

We notably demonstrated that institutional environment to which employees were in is positively relevant to employee pro-environmental behavior to control water pollution. More specifically, the better institutional environment that operators were in, the more likely they got involved in pro-environmental behavior to control water pollution. It should be noted that environmental concern would mediate the relation between different institutional environment dimensions and employee pro-environmental behavior to control water pollution. The relative assumption was checked through mediated regression analyses. A partial support was proved by the results based on the hypotheses. More specifically, environmental concern was discovered to partially mediate the relationships between employee pro-environmental behavior and regulatory institutional environment, normative institutional environment, and cognitive institutional environment. To sum up and notwithstanding the study's limitations, the findings offer greater perceptiveness into the significance of institutional environment dimensions can have on employee pro-environmental behavior to control water pollution. The study will assist governments and policy decision-makers improve the level of their institutional environment, and help them formulate more effective, incentive, mandatory policies to improve employee pro-environmental behavior to control water pollution.

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References

[1] D. Han, M.J. Currell, G. Cao, Deep challenges for China's war on water pollution, Environ. Pollut., 218 (2016) 1222–1233.
[2] W. Li, T. Hua, Q. Zhou, S. Zhang, W. Rong, Toxicity identification and high-efficiency treatment of aging chemical industrial wastewater from the Hangu Reservoir, China, J. Environ. Qual., 40 (2011) 1714–1721.
[3] Q. Wang, Z. Yang, Industrial water pollution, water environment treatment, and health risks in China, Environ. Pollut., 218 (2016) 358–365.
[4] S. Long, L. Zhao, T. Shi, J. Li, J. Yang, H. Liu, G. Mao, Z. Qiao, Y. Yang, Pollution control and cost analysis of wastewater treatment at industrial parks in Taihu and Haihe water basins, China, J. Clean. Prod., 172 (2018) 2435–2442.
[5] V. Blok, R. Wesselink, O. Studynka, R. Kemp, Encouraging sustainability in the workplace: a survey on the pro-environmental behaviour of university employees, J. Clean. Prod., 106 (2015) 55–67.
[6] P.K. Lehman, E.S. Geller, Behavior analysis and environmental protection: Accomplishments and potential for more, Behav. Soc. Issues, 13 (2004) 13.
[7] E. Kürzinger, Capacity building for profitable environmental management, J. Clean. Prod., 12 (2004) 237–248.
[8] A. Kollmuss, J. Agyeman, Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior?, Environ. Edu. Res., 8 (2002) 239–260.
[9] H.H. Teo, K.K. Wei, I. Benbasat, Predicting intention to adopt inter organizational linkages: an institutional perspective, Mis Quart., 27 (2003) 19–49.
[10] R.E. Dunlap, R. York, The globalization of environmental concern and the limits of the post materialist valutes explanation: evidence from four multinational survey, Sociol. Quart., 49 (2008) 529–563.
[11] E. Tatoglu, E. Bayraktar, S. Sahadev, M. Demirbag, K.W. Glaister, Determinants of voluntary environmental management practices by MNE subsidiaries, J. World Bus., 49 (2014) 536–548.
[12] B. Zhang, Z.H. Wang, K.H. Lai, Mediating effect of managers' environmental concern: Bridge between external pressures and firms' practices of energy conservation in China, J. Environ. Psychol., 43 (2015) 203–215.
[13] P. Dimmaggio, W. Powell, The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields, Am. Sociol. Rev., 48 (1983) 147–160.
[14] Y. Zhang, Y. Wei, G. Zhou, Promoting firms' energy-saving behavior: The role of institutional pressures, top management support and financial slack, Energ. Policy, 115 (2018) 230–238.
[15] H. Liang, N. Saraf, Q. Hu, Y. Xue, Assimilation of enterprise systems: the effect of institutional pressures and the mediating role of top management, Mis Quart., 212 (2007) 59–87.
[16] H. Bouscasse, J. Iragaël, P. Bonnel, How does environmental concern influence mode choice habits? A mediation analysis, Transport. Res. D-Tr. E., 59 (2018) 202–214.
[17] S. Bamberg, G. Möser, Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour, J. Environ. Psychol., 27 (2007) 14–25.
[18] J.M. Hines, H.R. Hungerford, A.N. Tomera, Analysis and synthesis of research on responsible environmental behavior: A Meta-Analysis, J. Environ. Edu., 18 (1987) 1–8.
[19] R. Rhead, M. Elliot, P. Upham, Assessing the structure of UK environmental concern and its association with pro-environmental behaviour, J. Environ. Psychol., 43 (2015) 175–183.
[20] Y.K. Lee, S. Kim, M.S. Kim, J.G. Choi, Antecedents and interrelationships of three types of pro-environmental behavior, J. Bus. Res., 67 (2014) 2097–2105.
[21] S. Hori, K. Kondo, D. Nogata, H. Ben, The determinants of household energy-saving behavior: Survey and comparison in five major Asian cities, Energ. Policy, 52 (2013) 354–362.
[22] P.C. Lin, Y.H. Huang, The influence factors on choice behavior regarding green products based on the theory of consumption values, J. Clean. Prod., 22 (2012) 11–18.
[23] N.L. Mosquera, F.L. López, M. Sánchez, Key factors to explain recycling, car use and environmentally responsible purchase behaviors: a comparative perspective, Resour. Conserv. Recy., 99 (2015) 29–39.

[24] P. Passafaro, A. Rimano, M.P. Piccini, R. Metastasio, V. Gambardella, G. Gullace, C. Lettieri, The bicycle and the city: Desires and emotions versus attitudes, habits and norms, J. Environ. Psychol., 38 (2014) 76–83.
[25] F. Coelho, M.C. Pereira, L. Cruz, P. Simões, E. Barata, Affect and the adoption of pro-environmental behaviour: A structural model, J. Environ. Psychol., 54 (2017) 127–138.
[26] R. Grewal, R. Dharwadkar, The role of the institutional environment in marketing channels, J. Mark., 66 (2002) 82–97.
[27] H. Lu, X. Liu, H. Chen, R. Long, T. Yue, Who contributed to "corporation green" in China? A view of public-and private-sphere pro-environmental behavior among employees, Resour. Conserv. Recy., 120 (2017) 166–175.