

Make an Environmental Impact Beyond the Organizational Boundary through Green Leisure Crafting

Abstract

In this research, we aimed to investigate whether green transformational leadership and green training may contribute to employees' green leisure crafting, thereby improving their green behaviors in private life. We also investigated whether employees' green value may amplify the impact of green leisure crafting on their green behaviors. The hypotheses are underpinned by self-determination theory and supply-value fit. Using a two-wave research design and studying a group of working individuals from a variety of industries in Taiwan ($N=374$), we found that green leisure crafting fully mediated the relationships between green transformational leadership and green training and green behaviors in private life and that green value strengthened the positive effect of green leisure crafting on green behaviors. Theoretical contributions, pragmatic implications, and future research avenues are discussed at the end of this research.

Keywords: Green transformational leadership; green training; green leisure crafting; green behavior in private life; green value; self-determination theory; supply-value fit

Introduction

With growing awareness of the need to address urgent climate crises through environmental management (Zhang & Zhu, 2019; Cheng, 2020), organizations have engaged in implementing green practices, such as turning off office lights before leaving and using electronic-based documents rather than printing them, with an aim of reducing environmental impacts from within the organization (e.g., Davis, Unsworth, Russell, & Galvan, 2020; Ojo, Raman, & Vijayakumar, 2020). Ample research findings have revealed that green practices contribute to environmental performance within an organization (e.g., Hameed, Khan, Islam, Sheikh, & Naeem, 2020; Yu & Ramanathan, 2015).

However, the question of whether green practices lead employees to perform green behaviors in their private life has not been sufficiently addressed in the literature. While many recent studies take an objective perspective (e.g., Davis, Unsworth, Russell, & Galvan, 2020; He, Wang, Wang, Zuo, Wu, & Liu, 2020), there are still a few studies from a supportive perspective (e.g., Muster & Schrader, 2011). Addressing this question is crucial because of the growing expectations for organizations' accountability to society and environmental sustainability (Guoyou, Saixing, Chiming, Haitao, & Hailiang, 2013; Dyllick & Muff, 2016). Organizations are expected to create environmental impacts beyond their organizational boundaries. This is particularly important in the post-COVID-19 era since employees have more time to spend in their private life domain than in

the work domain. In this study, we aim to address this question by investigating the interference of green practices such as green transformational leadership with employees' green behaviors in their private life.

Green transformational leadership, as one of the crucial green practices in organizations, has been the subject of many recent studies (Hameed, Naeem, Hassan, Naeem, Nazim, & Maqbool, 2021; Singh, Del Giudice, Chierici, & Graziano, 2020). The premise is that leadership motivates and supports employees to work toward the environmental goals of the organization (Mittal & Dhar, 2016). It also stimulates employees to acquire new green knowledge (e.g., Le & Lei, 2018), fosters a sense of environmental responsibility and creates a sense of belonging, and motivates them to create personal environmental goals at work (e.g., Bass, 1985; Le & Lei, 2018; Singh et al., 2020). Based on self-determination theory (Ryan & Deci, 2000), individuals are determined to fulfill innate needs such as value across domains. It is conceivable that employees may be intrinsically motivated to perform green behaviors outside the workplace. In other words, they may strive to pursue green-related activities that allow them to set and achieve environmental goals, acquire new green knowledge, and connect with like-minded individuals (i.e., green leisure crafting). This may consequently enable them to effectively perform green behaviors in their private life. In this study, we examine whether green transformational leadership may motivate employees' green leisure crafting, thereby improving their green behaviors in their private life.

Given that leisure crafting is a process through which individuals fulfill innate needs (Ryan & Deci, 2000), it is conceivable that the impact of leisure crafting on individuals may differ depending on the level of their needs. We further consider the role of green value in this research. Supply-value fit (Edwards, 1996) proposes that individuals' work value may alter the perceived effect of work attributes (supplies) on their behaviors. Empirical studies have revealed that employees' green value amplifies the impact of green human resource management practices on their green behaviors at work (e.g., Dumont, Shen, & Deng, 2017). However, whether employees' green value may alter the impact of attributes (e.g., green leisure crafting) outside the organization on their green behaviors has not been sufficiently discussed in the literature. We argue that individuals who possess a high level of green value may be more likely to perceive crafted green leisure activities as useful to them than those with low green value, thereby strengthening the impact of green leisure crafting on their subsequent green behaviors. By empirically investigating the above relationship, we further extend the boundary of supply-value fit theory.

We contribute to the literature in the following ways. First, we investigate the role of green transformational leadership in employees' green behaviors in their private life. Rather than investigating the direct impact of green transformational leadership on employees' green behaviors, we investigate whether green leisure crafting may serve as a mechanism on the relationship between green transformational leadership and green behaviors. In other words, we use the

mediating effect of green leisure crafting on the relationship between green transformational leadership and green behaviors. Furthermore, we use self-determination theory to provide insight into how green transformational leadership may motivate green leisure crafting, thereby strengthening green behaviors in employees' private life, which contributes to the literature on leadership, environmental management, and leisure studies. Second, we provide empirical support for the moderating role of green value in green leisure crafting, green behaviors in private life, which further extends the theoretical boundary of supply-value fit theory since the theory was developed and has been widely tested in work settings (e.g., Dumont, et al., 2017). By testing the interaction effect of green value and green leisure crafting on green behaviors, we reveal the role of employees' green value in how employees perceive the impact of green leisure crafting on their green behaviors in private life.

Literature Review

The impact of green transformational leadership and green training

Green transformational leadership accounts for leaders' behaviors of providing their followers with a clear vision, motivation, and support and inspiring them to go the extra mile to achieve the environmental goals of the organization (Mittal & Dhar, 2016; Chen & Chang, 2013). Leaders who implement green transformational leadership inspire and stimulate employees' green passion, encourage them to set and pursue environmental goals, motivate them to learn green-

related knowledge, and provide them with necessary support to effectively perform green behaviors beyond what is required by the organization (Chen & Chang, 2013; Dranev, Izosimova, & Meissner, 2020; Jung, Chow, & Wu, 2003; Le & Lei, 2019; Peng, Zhao, Xu, & Hou, 2019). In addition to promoting green behaviors within organizations (e.g., Ayandibu, 2019; Li, Bhutto, Xuhui, Maitlo, Zafar, & Bhutto, 2020), we argue that green transformational leadership may be a mechanism that motivates employees to perform green behaviors across domains. Self-determination theory (Ryan & Deci, 2000) specifies that individuals have a natural tendency to fulfill basic psychological needs (e.g., needs for autonomy, competence, and relatedness). In line with this theory, it is conceivable that employees led by green transformational leaders may be intrinsically motivated to set environmental goals (autonomy), to obtain green-related knowledge (competence), and to extend their green social network (relatedness) in their private life. These behaviors are conceptualized as green leisure crafting. *Leisure crafting* refers to the proactive pursuit of leisure activities by individuals that aim for goal setting, learning and personal development, and human connection (Petrou & Bakker, 2016). Individuals may craft/shape their pursued leisure activities in a way that satisfies their psychological needs and addresses their passion (Berg, Grant, & Johnson, 2010; Chen, 2020). Therefore, we define *green leisure crafting* as the proactive pursuit of green-related leisure activities targeted at goal setting, human connection, and learning and personal development.

Rather than examining the impact of green transformational leadership on individuals' green

behaviors at work, which has been studied extensively (e.g., Ayandibu, 2019; Li et al., 2020), we are particularly interested in investigating the impact on their green behaviors in private life. We examine green leisure crafting and green behaviors in private life to explore how green transformational leadership may result in employees' green behaviors in private life through green leisure crafting. *Green behaviors* are defined as behaviors that reduce harm or improve to the situated environment (Ones, Wiernik, Dilchert, & Klein, 2015; Steg & Vlek, 2009). It is a crucial element of environmental sustainability (Andersson, Jackson, & Russell, 2013). Existing studies have investigated several issues related to green behaviors in a work context. However, little research has been conducted to investigate green behavior issues in a cross-domain manner, such as the interference of green transformational leadership with employees' green behavior in private life through green leisure crafting, which is crucial for a company that attempts to create a positive environmental impact on wider society. We argue that green leisure crafting may allow individuals to set and pursue goals as well as learn and professionally develop through their pursued green-related leisure activities, thereby encouraging them to effectively perform green behaviors in private life. Additionally, through green leisure crafting, individuals may broaden their social network by connecting with like-minded individuals, thereby enabling them to have more opportunities to acquire resources when needed (e.g., Tindall & Robinson, 2017), which may consequently encourage them to perform green behavior in their private life.

Hypothesis 1a. Green leisure crafting mediates the positive relationship between green transformational leadership and green behaviors in private life.

In this research, we additionally investigate the role of green training in employees' green behavior in private life through green leisure crafting. *Green training* refers to "a mechanism for improving problem-solving abilities among employees for developing solutions to cope with environmental issues and align company policies with environmental protection strategies to meet organization sustainability goals" (Jabbour, 2013, p. 147). Green training has been regarded as critical among green human resource management practices (Jabbour, de Sousa Jabbour, Govindan, Teixeira, & de Souza Freitas, 2013) and as one of the most significant predictors for green behavior at work (e.g., Paillé & Raineri, 2015). Although existing studies have revealed that green training contributes to green performance in organizations (e.g., Teixeira, Jabbour, de Sousa Jabbour, Latan, & De Oliveira, 2016, Pham, Vo-Thanh, Shahbaz, Huynh, & Usman, 2020), little is known about whether and how such training may benefit wider society, such as employees' private life domain, through their green behavior in the domain. Addressing this issue may help a company broaden its environmental contributions from green training from within to outside the company. Therefore, examining the potential effect of green training on employees' green behavior in private life through their green leisure crafting may add crucial green human resource management insights to companies that attempt to contribute to the environment and society.

Although green training aims mainly to improve environmental management in organizations, existing studies have found that green training increases employees' desire to be good to the environment (e.g., Afsar, Cortez, Santos, 2015), improves their environmental awareness of how their behaviors may influence the environment in general (e.g., Daily, Bishop, & Massoud, 2012; Renwick, Redman, & Maguire, 2013) and strengthens their ability to identify environmental issues (e.g., Jabbour, Santos, & Nagano, 2010). Empirical studies have also revealed that green training stimulates employees to pursue knowledge that benefits them in making environmentally responsible decisions and lifestyles (e.g., Yuriev, Boiral, Francoeur, & Paillé, 2018). In other words, green training may motivate individuals to care about the environment in a general way and to take further action to do so. Because green leisure crafting involves goal setting, learning and personal development, and human connections through green-related leisure activities, we propose that green training may motivate individuals, by crafting green leisure activities, to set goals and develop plans to address environmental issues (e.g., Donmez-Turan & Kiliclar, 2021), to learn new green-related knowledge (e.g., Zsóka, Szerényi, Széchy, & Kocsis, 2013), and to reach out to like-minded individuals for related support and resources (e.g., Tindall & Robinson, 2017), thereby benefiting their green behavior in private life. Based on the above, we propose the following hypothesis:

Hypothesis 1b. Green leisure crafting mediates the positive relationship between green training

and green behaviors in private life.

The role of green value

Supply-value fit theory (Edwards, 1996) specifies that the match between the work aspects desired by employees (i.e., work values) and the work attributes that fulfill those values strengthens employees' positive work behaviors. *Values* refer to what employees want from work (e.g., preferences, needs, and motives; Edwards, 1996) and are viewed as enduring and stable over time (Rokeach, 1973; Van Vianen & Prins, 1997). *Supplies* represent the attributes provided by the environment (e.g., job resources) that may fulfill individuals' values (Cable & Edwards, 2004). Values may not influence individuals' behaviors directly; rather, they may modify the perceived impact of supplies on behaviors (Locke, 1976). In other words, work values serve as a moderator in the relationship between supplies and employees' behaviors (Taris & Feij, 2001). The theory was developed and has been widely tested in work contexts (e.g., Edwards, 1996; Taris & Feij, 2001). Our study further extends the boundary of theory by empirically examining it in a nonwork context. *Green value* refers to individuals' attitudes and beliefs in environmental sustainability (Dumont et al., 2017). In this study, we argue that green value may alter how individuals perceive the impact of green leisure crafting on themselves, thereby influencing their subsequent green behaviors in private life. Empirical studies have discovered that leisure crafting benefits value congruence (e.g., Berg, Grant, & Johnson, 2010). It is therefore conceivable that individuals who

possess high green value may be more likely than those with low green value to perceive the positive impact of green leisure crafting on themselves, thereby boosting their green behaviors. We test the moderating impact of green value on the relationship between green leisure crafting and green behaviors in private life.

Hypothesis 2. Green leisure crafting has a stronger positive relationship with green behaviors for individuals who are high (vs. low) in green value.

We depict the study framework in Figure 1. In this research, we performed a two-wave research design to test: (1) whether green leisure crafting may mediate the positive relationships between green transformational leadership and green training and green behavior in private life; and (2) whether green value may strengthen the positive relationship between green leisure crafting and green behavior by studying a group of Taiwanese employees from a wide range of industries.

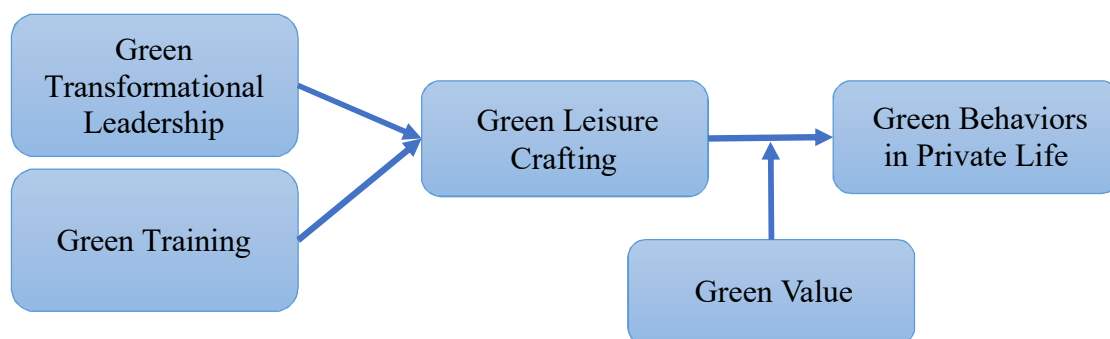


Figure 1 Research framework

Method

Participants and procedure

We worked with a survey agent based in Taiwan and applied a two-wave research design to examine the developed hypotheses by studying a group of employees from various industries in Taiwan. An increasing number of companies in Taiwan, regardless of the type of industry, have invested efforts into promoting green ways of work through green transformational leadership (e.g., Chen, Chang, & Lin, 2014) and green training, striving to address environmental issues and further contribute to a sustainable environment globally. It is likely that this implementation may, in turn, affect employees' green leisure crafting, thereby influencing their green behaviors in private life. Our study therefore offers timely understanding and pragmatic implications for companies in Taiwan. Before the survey, the survey agent, on our behalf, reached, explained the purpose of the research to, and obtained survey permission from the respondents. The respondents were assured that the responses will be kept anonymous and that the collected data will remain confidential. Their participation in the survey was voluntary, and they received no incentives.

The questionnaires at Time 1 were distributed to 600 working individuals. A total of 487 usable questionnaires were received (response rate of 81.2%). At Time 1, we evaluated the respondents' demographics, green value, green transformational leadership, green training, and green leisure crafting. Two weeks after the end of the first survey (Time 2), we distributed another set of questionnaires to the original 487 respondents. At Time 2, we evaluated the respondents' green behaviors in their private life during the previous two weeks. The adoption of a two-week

lag between the two surveys was recommended by the survey company. A total of 374 questionnaires were received (response rate of 77%). Over half (59.4%) of the respondents were female. Most of the respondents' ages ranged from 36 to 40 years (23.3%), 31 to 35 years (22.7%), 26 to 30 years (16%), 41 to 45 years (15.8%), and 21 to 26 years (12.3%). Over half (69.3%) of the respondents had a bachelor's degree, while other respondents had a senior high/vocational school diploma (17.4%) or a master's degree (11%). A total of 66.6% of the respondents served in the technology industry, and 26.2% worked in the service industry.

Measures

To retain the original meaning of each item, we applied a back-translation approach to all measurement items (from English to Chinese) by two translation professionals who specialized in English and Chinese (Brislin, 1980).

Green transformational leadership was measured by utilizing and amending a six-item (Cronbach's $\alpha=.95$; $X^2/df=5.50$; $GFI=.96$; $AGFI=.91$; $CFI=.98$; $RMR=.02$) scale developed by Chen and Chang (2013). The items were originally designed to be evaluated by managers. We amended the items to fit the use by employees. For example, we amended the original item "I inspire subordinates with an environmental plan" to "My manager inspires me with an environmental plan". All items were rated based on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

Green training was measured by utilizing a three-item (Cronbach's $\alpha=.93$) scale developed by Alfes, Shantz, and Truss (2012). A couple of sample items are "I am provided with sufficient opportunities for training and development in environmental management" and "I receive the environmental training I need to reduce the environmental impact of my job". All items were rated based on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7).

Green leisure crafting was measured by utilizing and amending a nine-item scale (Cronbach's $\alpha=.96$; $\chi^2/df=4.59$; GFI=.93; AGFI=.88; CFI=.97; RMR=.03) developed by Petrou and Bakker (2016). The items were originally designed to evaluate general leisure crafting. We amended the items to fit the evaluation of green leisure crafting. For example, we amended the original item "I try to build relationships through leisure activities" to "I try to build relationships through green-related leisure activities". All items were rated based on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7).

Green behaviors in private life were measured based on a sixteen-item scale (Cronbach's $\alpha=.87$; $\chi^2/df=9.69$; GFI=.98; AGFI=.90; CFI=.98; RMR=.08) developed by Yang and Weber (2019). The items were specifically designed for evaluation in the Chinese context. A couple of sample items are "In my private life, I recycle paper, cardboard, plastic, glass, cans, batteries or other materials" and "In my private life, I purchase energy-efficient home appliances". All items were rated based on a 7-point Likert scale ranging from never (1) to always (7).

Green value was measured by a five-item scale (Cronbach's $\alpha=.81$; $\chi^2/df=4.87$; GFI=.98; AGFI=.92; CFI=.96; RMR=.01) developed by Chou (2014). A sample item is "I feel a personal obligation to do whatever I can to prevent environmental degradation". All items were rated based on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

We evaluated some demographic variables (e.g., gender, age, education, and industry). Existing studies have found a role of gender differences in green-related behavior (e.g., Xiao & Hong, 2010), and this finding may be explained by socialization theory (Mustafa, 2015). In a meta-analysis study, Wiernik, Dilchert, and Ones (2016) confirmed the role of age differences in green-related behavior. The findings regarding the role of educational differences are mixed in existing studies. Some studies have found that educational differences have only a weak relationship with green-related behavior (e.g., Klein, D'Mello, & Wiernick, 2012) and have further suggested that education may not be considered a control variable when evaluating individuals' green behavior (e.g., Kim, Kim, Han, Jackson, & Ployhart, 2017). Similarly, no previous study has found a significant result for the role of industrial differences in employees' green-related behavior. We therefore did not include education and industry as control variables.

Results

We summarize the means, standard deviations, and Pearson correlation results for the focal measures in Table 1. None of the control variables were significantly associated with green

behaviors in private life. Therefore, they were excluded from further analysis. Prior to testing the hypotheses, we adopted two methods to examine whether our study was influenced by common method variance. The result based on Harman's single-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) revealed that only a small portion of the common variance among our focal measurements was explained by the main factor (38.4%). The result based on confirmatory factor analysis as suggested by Iverson and Maguire (2000) showed that the model fit indices for the tested model were all poor ($\chi^2/df=8.563$; $GFI=.48$; $AGFI=.40$; $CFI=.67$; $RMR=.12$). In other words, this study was not affected by common method variance in a significant way.

We initially examined hypotheses 1a and 1b using SPSS Process Macro (Model 4). Hypothesis 1a states that green leisure crafting mediates the positive relationship between green transformational leadership and green behaviors in private life. We summarize the results in Table 2. The results showed that green leisure crafting fully mediated the relationship between green transformational leadership and green behaviors since the indirect effect of green leisure crafting on the relationship between green transformational leadership and green behaviors in private life was significantly positive (indirect effect=.34, 95% CI=[.26, .43]) and the direct effect of green transformational leadership on green behaviors in private life was positive but insignificant (direct effect= .11, 95% CI=[-.02, .23]). We found similar results for hypothesis 1b. Hypothesis 1b states that green leisure crafting mediates the positive relationship between green training and green

behaviors in private life. The results showed that green leisure crafting partially mediated the relationship between green training and green behaviors in private life since the indirect effect of green leisure crafting on the relationship between green training and green behaviors in private life was significantly positive (indirect effect=.20, 95% CI=[.15, .26]) and the direct effect of green training on green behaviors in private life was also positive and significant (direct effect= .07, 95% CI=[.01, .14]).

Table 1. Means, standard deviations, and correlation results

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Age	4.45	1.65	-							
2. Gender	1.41	.49	.12*	-						
3. Education	3.90	.62	-.24***	.07	-					
4. Industry	3.18	1.23	.69***	.12	-.10	-				
5. Green transformational leadership	3.52	.83	-.06	-.05	-.09	.01	-			
6. Green training	4.84	1.35	-.09	-.04	-.06	.01	.78***	-		
7. Green leisure crafting	3.26	.88	-.08	-.06	.01	.02	.67***	.63***	-	
8. Green value	4.07	.50	-.04	-.12*	.02	.06	.41***	.43***	.43***	-
9. Green behaviors in private life	4.69	.84	-.08	-.09	.05	-.01	.45***	.44***	.58***	.47***

Note: *: $p < .05$; ***: $p < .001$ ($N=374$ participants)

Age: 1= 20 years and below, 2= 21-25 years, 3= 26-30 years, 4= 31-35 years, 5= 36-40 years, 6= 41-45 years, 7= 46-50 years, 8= 51-55 years, 9= 56-60 years, 10= 61 years and above. Gender: 1= Female, 2= Male. Education: 1= Primary school, 2= Secondary school, 3= Senior high/vocational school, 4= Bachelor's degree, 5= Master's degree, 6= Doctoral degree and above. Industry: 1= Education, 2= Manufacturer, 3= Technology, 4= Service, 5= Communication and media, 6= Others

Table 2. The bootstrapping analysis results for hypotheses 1a and 1b ($N=374$)

Indirect paths	Bootstrapping			
	Direct effect	95% CI (direct effect)	Indirect effect	95% CI (Indirect effect)
Green transformational leadership → Green leisure crafting → Green behaviors in private life	.11	[-.02, .23]	.34	[.26, .43]
Green training → Green leisure crafting → Green behaviors in private life	.07	[.01, .14]	.20	[.15, .26]

Note: CI: confidence interval

We examined hypothesis 2 by examining two moderated mediation models using SPSS Process Macro (Model 14), one with green transformational leadership as the predictor and the other with green training as the predictor. Hypothesis 2 states that green leisure crafting has a stronger positive relationship with green behaviors in private life for individuals who are high (vs. low) in green value. We summarize the results in Tables 3 and 4. In both tables, the results revealed that the interaction between green leisure crafting and green value associated with green behaviors in private life was significant ($\beta=.15, p< .05$). A simple slope analysis was further conducted to examine the effect of the interaction term. We computed the value of green behaviors in private life for two groups: one group scored 1 *SD* below the mean and the other group scored 1 *SD* above the mean for green leisure crafting and green value. We depict the simple slopes in Figure 2. As expected, the association between green leisure crafting and green behaviors in private life was stronger for those with high green value ($b= .57, p< .001$) than for those with low green value ($b= .42, p< .001$). In addition, based on Table 3, the results of the moderated mediation model showed that green leisure crafting fully mediated the relationship between green transformational leadership and green behaviors in private life (Index= .11, 95% CI= [.01, .19]) when green value was considered a moderator of the relationship between green leisure crafting and green behaviors in private life since the direct effect of green transformational leadership on green behaviors in private life was not significant (direct effect= .04, 95% CI=[-.07, .15]). Similarly, based on Table

4, the results of the moderated mediation model showed that green leisure crafting fully mediated the relationship between green training and green behaviors in private life (Index= .06, 95% CI=[.01, .12]) when green value was considered a moderator for the relationship between green leisure crafting and green behaviors in private life since the direct effect of green training on green behaviors in private life was not significant (direct effect= .03, 95% CI=[-.03, .10]).

Table 3. Results for the conditional indirect effect (green transformational leadership as the predictor; $N= 374$)

Predictors	β	SE	t	p
Green leisure crafting				
Constant	-2.47	.15	-16.75	.00
Green transformational leadership	.70	.04	17.22	.00
Green behaviors in private life				
Constant	4.52	.20	23.08	.00
Green transformational leadership	.04	.05	8.02	.00
Green leisure crafting	.42	.05	8.02	.00
Green value	.48	.08	6.22	.00
Green leisure crafting* Green value	.15	.06	2.38	.02
Direct and indirect effect	Effect	Boot SE	Boot LLCI	Boot ULCI
Direct effect	.04	.05	-.07	.15
Conditional indirect effect(s) of X on Y at range of values of moderator				
-1 <i>SD</i>	.24	.04	.16	.33
<i>M</i>	.30	.04	.22	.38
+1 <i>SD</i>	.35	.05	.25	.45
<i>Mediator</i>	Index	SE	LL 90% CI	UL 90% CI
Index of moderated mediation	.11	.05	.01	.19

Note: Bootstrap sample size = 1,000

LL: lower limit; UL: upper limit; CI: confidence interval

Table 4. Results for the conditional indirect effect (green training as the predictor; $N= 374$)

Predictors	β	SE	t	p
Green leisure crafting				
Constant	-2.0	.13	-15.12	.00
Green training	.41	.03	15.69	.00
Green behaviors in private life				
Constant	4.50	.16	27.46	.00
Green training	.03	.03	1.03	.31
Green leisure crafting	.42	.05	8.23	.00
Green value	.48	.08	6.12	.00
Green leisure crafting* Green value	.15	.06	2.47	.014
Direct and indirect effect	Effect	Boot SE	Boot LLCI	Boot ULCI
Direct effect of X on Y	.03	.03	-.03	.10
Conditional indirect effect(s) of X on Y at range of values of moderator				
-1 SD	.14	.03	.09	.20
M	.17	.03	.12	.23
+1 SD	.20	.03	.14	.27
<i>Mediator</i>	Index	SE	LL 90% CI	UL 90% CI
Index of Moderated Mediation	.06	.03	.01	.12

Note: Bootstrap sample size = 1,000

LL: lower limit; UL: upper limit; CI: confidence interval

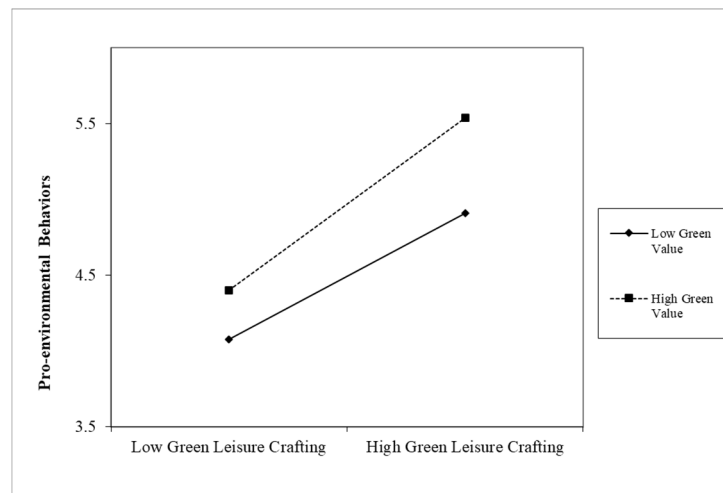


Figure 2 Moderating effect of green value on the relationship between green leisure crafting and green behaviors in private life

We examined two additional moderated mediation models to analyze the potential moderating

effect of green value on the relationships between green transformational leadership and green training and green leisure crafting. Although it is not the focus of this study, we were interested in determining whether green value may amplify the impact of both green practices on employees' green leisure crafting. We examined both relationships using SPSS Process Macro (Model 7), one with green transformational leadership as the predictor and the other with green training as the predictor. We summarize the results in Tables 5 and 6. In both tables, the results revealed that the interactions between green transformational leadership ($\beta = -.15, p > .05$) and green training ($\beta = -.05, p > .05$) and green value associated with green leisure crafting were negatively insignificant. In addition, based on Table 5, the results of the moderated mediation model showed that green leisure crafting did not mediate the relationship between green transformational leadership and green behaviors in private life (Index = $-.004$, 95% CI = $[-.07, .07]$) when green value was considered as a moderator for the relationship between green transformational leadership and green leisure crafting. Similarly, based on Table 6, the results of the moderated mediation model showed that green leisure crafting did not mediate the relationship between green training and green behaviors in private life (Index = $-.03$, 95% CI = $[-.07, .02]$) when green value was considered as a moderator for the relationship between green training and green leisure crafting.

Table 5. Results for the conditional indirect effect for the additional analysis (green transformational leadership as the predictor; $N= 374$)

Predictors	β	SE	t	p
Green leisure crafting				
Constant	-.37	.87	-.43	.67
Green transformational leadership	.65	.27	2.43	.02
Green value	.36	.21	-.11	.10
Green transformational leadership *	-.01	.06	-.11	.91
Green value				
Green behaviors in private life				
Constant	2.72	.16	17.20	.00
Green leisure crafting	.49	.05	9.09	.00
Green transformational leadership	.11	.06	1.88	.06
Direct and indirect effect	Effect	Boot SE	Boot LLCI	Boot ULCI
Direct effect	.11	.06	-.01	.22
Conditional indirect effect(s) of X on Y at range of values of moderator				
-1 <i>SD</i>	.304	.05	.22	.40
<i>M</i>	.302	.04	.22	.38
+1 <i>SD</i>	.301	.04	.22	.38
<i>Mediator</i>	Index	SE	LL 90% CI	UL 90% CI
Index of moderated mediation	-.004	.04	-.07	.07

Note: Bootstrap sample size = 1,000

LL: lower limit; UL: upper limit; CI: confidence interval

Table 6. Results for the conditional indirect effect for the additional analysis (green training as the predictor; $N= 374$)

Predictors	β	SE	t	p
Green leisure crafting				
Constant	-.81	.81	-1.00	.32
Green training	.57	.18	3.20	.002
Green value	.58	.20	2.84	.01
Green training * Green value	-.05	.04	-1.22	.22
Green behaviors in private life				
Constant	2.76	.15	18.82	.00
Green leisure crafting	.48	.05	9.40	.00
Green training	.07	.03	2.17	.03
Direct and indirect effect	Effect	Boot SE	Boot LLCI	Boot ULCI
Direct effect	.07	.03	.01	.14
Conditional indirect effect(s) of X on Y at range of values of moderator				
-1 <i>SD</i>	.19	.03	.14	.24
<i>M</i>	.17	.02	.13	.22
+1 <i>SD</i>	.16	.03	.11	.21
<i>Mediator</i>	Index	SE	LL 90% CI	UL 90% CI
Index of moderated mediation	-.03	.02	-.07	.02

Note: Bootstrap sample size = 1,000

LL: lower limit; UL: upper limit; CI: confidence interval

Discussions

The aim of this research was to investigate whether and how green transformational leadership and green training may influence employees' green behaviors in private life. In particular, we investigated whether green transformational leadership and green training may motivate employees' green leisure crafting, thereby improving their green behaviors in private life. Furthermore, this research also investigated whether green value may amplify the relationship between green leisure

crafting and green behaviors. Our findings from a study of a group of working individuals from a variety of industries in Taiwan showed support for the developed hypotheses. We found that rather than directly improving employees' green behaviors in their private life, both green transformational leadership and green training motivated employees to perform green leisure crafting, thereby contributing to their green behaviors in private life. Additionally, we found that the interaction between green value and green leisure crafting had an impact on employees' green behaviors in private life. In other words, individuals who were high in green value were more likely to strengthen the positive impact of green leisure crafting on their green behaviors than those low in green value.

Theoretical contributions

Our study provides several theoretical contributions. First, this study empirically supports self-determination theory from a longitudinal perspective. We found that green transformational leadership and green training increased respondents' green leisure crafting, which in turn contributed to their green behaviors in private life in the long term. Many studies on green transformational leadership and green training have presented evidence based on a work context (e.g., Clark, Kotchen, & Moore, 2013; Robertson & Barling, 2013; Zibarras & Coan, 2015). Our research may be one of the few studies to examine the impact of green transformational leadership and green training on employees' green behaviors in a cross-domain manner. We are aware of a

study that showed similar conceptual findings by claiming that employees replicate green behaviors they learned and/or practiced at work in their private life (e.g., Muster & Schrader, 2011). We argue that this may not always be true since the work domain and the private life domain are not the same by nature and that behavioral replications across domains may not always be likely. Based on our research findings, we claim that it may be more conceivable that green practices such as green transformational leadership and green training may motivate employees to craft green-related activities, thereby contributing to their green behaviors in private life. We extend the green human resources management and leadership literature by providing novel insights concerning the cross-domain impact of green practices at work on employees' green behaviors in private life.

Additionally, using self-determination theory, we studied the mediation effect of green leisure crafting on the relationship between green transformational leadership and green behaviors in private life. Our study results empirically demonstrated that green transformational leadership benefited employees' green behaviors in their private life by motivating them to craft green-related leisure activities. We therefore extend the leisure crafting literature by showing the impact of green transformational leadership on green leisure crafting and, in turn, green behaviors in private life. Studies on leisure crafting issues have increased in recent years (e.g., Petrou, Bakker, & van den Heuvel, 2017; Tsaour, Yen, Yang, & Yen, 2020). However, few studies have investigated the possible role of leisure crafting in environmental issues. We argue that this may be because existing studies

have maintained a generic conceptualization of leisure crafting (e.g., Petrou et al., 2017). By proposing green leisure crafting and theoretically and empirically testing green leisure crafting in this study, we provide novel insights into the leisure crafting and environmental management literature by revealing the contribution of (green) leisure crafting to environmental issues.

Second, according to self-determination theory, we offer insights into the role of green human resource management practices such as green training in employees' green behaviors in private life by studying how green training may motivate employees' green leisure crafting, thereby improving their green behaviors in private life. Although green training has been widely investigated in the literature (e.g., Afsar et al., 2015; Donmez-Turan & Kiliçlar, 2021; Yuriev et al., 2018), we are unaware of studies that have explored the role of green training in employees' green behaviors beyond organizational boundaries. We investigated how green training within an organization may motivate employees to perform green leisure crafting, which in turn contributes to their green behaviors in private life. We believe that this investigation is crucial in broadening what we already know about green human resource management practices since green human resource management practices have been widely viewed as benefiting environmental management within an organization, leaving their environmental contribution to wider society overlooked in the green human resource management practices literature. Hence, we propose that to better understand green human resource management practices such as green training, it is essential to know whether

employees craft green-related leisure activities in response to their green training, which consequently motivates them to perform green behaviors in their private life.

Third, we contribute to the literature on leadership, human resource management, and leisure crafting by treating green behaviors in private life as an outcome measure. With the growing concern about global environmental degradation, organizations have been anticipated to make an environmental impact beyond their organizational boundaries (Guoyou, et al., 2013; Dyllick & Muff, 2016). Considering green behaviors in private life is therefore critical for providing new insights into the literature on how green practices within an organization, such as green transformational leadership and green training, may contribute to wider society, such as employees' private life domain. It is therefore crucial to recognize and investigate factors that may affect employees' green behaviors in private life. In this study, we found that green transformational leadership and green training may lead to employees' green behaviors in private life through green leisure crafting. We claim that green transformational leadership and green training may motivate employees to craft green-related leisure activities, which in turn enable them to perform green behaviors in their private life. Our findings also contribute to the literature on leisure crafting by adding insights into how green leisure crafting that is affected by green practices within an organization eventually has a meaningful impact on employees' green behaviors outside the organization.

Fourth, using supply-value fit theory as a theoretical underpinning, we studied the moderation effect of green value on the relationship between green leisure crafting and green behaviors in private life. We demonstrated that green value strengthened the contribution of green leisure crafting to employees' green behaviors in private life. In other words, green value influences how employees perceive the effect of green leisure crafting on themselves, which in turn affects their green behaviors in private life. We propose that employees who are high in green value may be more likely to perceive the benefit of green leisure crafting than those who are low in green value, thereby amplifying the positive effect of green leisure crafting on their green behaviors in private life. Our results not only are supported by but also extend supply-value fit theory. Specifically, supply-value fit theory has been extensively tested and supported by evidence in work settings, even with regard to environmental issues (e.g., Aboramadan, 2020; Islam, Khan, Ahmed, & Mahmood, 2020). However, relatively few studies have investigated the theory in a nonwork domain. By studying the moderating role of green value in the relationship between green leisure crafting and green behaviors in private life, we extend the explanatory boundary of supply-value fit theory.

Fifth, we investigated the moderating impact of green value on the relationships between green transformational leadership, green training and green leisure crafting. Interestingly, the results revealed that green value insignificantly weakens the impact of green transformational

leadership and green training on green leisure crafting, thereby contradicting supply-value fit theory and some existing study findings (e.g., Liu, Mei, & Guo, 2020). We infer that the results may be due to the nature of the contexts of the predictors (i.e., a work context) and the outcome measure (i.e., a nonwork context). It may be possible that green transformational leadership and green training are work-oriented, thereby enabling employees, particularly those high in green value, to perceive a greater impact of those practices on themselves and to be more effective in performing green behaviors and engage in environmental management in the organization than those low in green value (e.g., Dumont et al., 2017). However, a nonwork domain may require individuals to use ways other than those used in a work domain. This may lead employees who are high in green value to be more likely to perceive the practical limitations of the contribution of green transformational leadership and green training and in turn to become less effective in performing green-related behaviors outside the company (e.g., green leisure crafting). The findings provide additional novel insights into the role of green practices in green behaviors outside the organizational boundary in the literature on green human resource management, leadership, and environmental management. They also indicate a possible contextual issue that may need to be considered when using supply-value fit theory to investigate green value issues in a cross-domain manner.

Research limitations and future research directions

Some research limitations are identified. First, we studied a group of working individuals from a variety of industries in Taiwan. The results of this study may not be generalizable to other countries. However, we are unaware of any studies specifying that Taiwanese employees are more likely to under- and/or overreport our focal measures (e.g., green transformational leadership, green training, green leisure crafting, green value, and green behaviors in private life) than employees from different countries. However, we believe that testing our research model using respondents from different countries may further consolidate and improve the generalizability of our results and hence encourage future research to do so.

Second, all focal measures were self-reported. One may argue that the results of this study may have been affected by common method bias. To address this concern, we conducted a two-week time lag for data collection to minimize the issue for more robust hypothesis testing and performed Harman's single-factor test (Podsakoff et al., 2003) and confirmatory factor analysis as suggested by Iverson and Maguire (2000) to show that common method bias was not detrimental to our results. Additionally, we argue that the focal measures of this study are related to individuals' perceptions and behaviors, which may be accurately measured by using self-reports. However, we suggest that future research use measures that can be investigated objectively (e.g., the change of excessive and nonessential consumption).

Third, based on our additional analysis and results, we note that whether the relationships

between green transformational leadership, green training and green leisure crafting are affected by any individual, organizational (e.g., work/nonwork), or societal factors remains unclear and should be further discussed. Considering the potential factors that may impact the effect of green practices in an organization on employees' green leisure crafting may provide more information for organizations to effectively implement environmental contributions to society through their employees' green-related behaviors. Similarly, our study found that certain green practices, such as green training and green transformational leadership, motivated employees to perform green behaviors in private life by crafting green-related leisure activities. Future research may test additional types of green human resource management practices in our model to determine whether they also achieve the same results, which may provide more opportunities and ways for organizations to contribute to environmental sustainability outside the organizational boundary. Moreover, such an analysis may be valuable and may help generate comprehensive knowledge on the implications of the impact of green practices on employees' green behaviors outside the organizational boundary by exploring potentially negative effects of underdeveloped green practices on employees' green behavior in private life (Muster & Schrader, 2011).

Practical implications

In this study, we revealed that green human resource management practices may not affect employees' green behaviors in private life directly; rather, they may do so by motivating employees

to craft green-related leisure activities. We claim that it is crucial for managers to know expecting to make an environmental impact beyond the organizational boundary by implementing green practices may not be enough. Exploring ways to motivate employees to craft green-related leisure activities may be the key. Based on our results, we suggest that managers may implement green transformational leadership and green training since both practices may effectively stimulate employees to perform green leisure crafting, which may consequently contribute to their green behaviors in private life. Specifically, managers may provide employees with a clear environmental vision that aims to make a greater impact beyond the boundary of the company; inspire, motivate, and support them to craft green-related leisure activities during off-work hours; and encourage them to apply what they have acquired through crafted, green-related leisure activities to their green behaviors in private life (e.g., new green-related knowledge and like-minded social networks).

Additionally, managers may consider developing green training programs that may stimulate employees to actively set green goals in their private life, learn additional green-related knowledge, and explore and connect with like-minded individuals outside the company. For example, learning elements such as encouraging employees to develop their own green goals that align with the company's environmental vision, asking employees to address a challenging environmental issue that may require them to additionally learn new green-related knowledge, and collaborating with environmental-related organizations and institutes may be considered during the stage of training

program development. Such green training programs may benefit employees in performing green leisure crafting, which may in turn contribute to their green behaviors in private life.

We also found that employees who are high in green value may be more likely to perceive a greater impact of green leisure crafting on their green behaviors in private life than those who are low in green value. It is therefore crucial for managers to foster green value in employees. We suggest that managers demonstrate to employees how environmental degradation may have a significant impact on their private life; how their green behaviors in private life may make a huge, positive change toward environmental sustainability in the long run; and how they can effectively perform such behaviors (e.g., through green leisure crafting). Managers can foster employees' green value and responsibility by emphasizing the importance of environmental sustainability. Fostering green value in employees may make them more likely to perceive a greater impact of green leisure crafting on their green behaviors in private life.

Conclusion

In this study, we examined whether green transformational leadership and green training may contribute to employees' green behaviors in private life through their green leisure crafting. We also examined whether employees' green value may strengthen the positive impact of green leisure crafting on their green behaviors. Empirical evidence based on employees from a range of various industries in Taiwan supported our claims, which were underpinned by self-determination theory

and supply-value fit. We have provided several future research avenues that may further strengthen our results. Future studies may also use our developed model as a blueprint to investigate the possible cross-domain impact of other green practices on employees' green behaviors outside the work domain. Practitioners may adopt the findings of this study as a reference to make an environmental contribution beyond their organizational boundaries.

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