

Promoting pro-environmental behavior among university students: Does psychological green climate matter?

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ABSTRACT

This study tests a model that explains how a university's green climate can motivate students to exhibit pro-environmental behaviors. Specifically, the research model, which consists of the nexus between Psychological Green Climate (PSC), Green Self-Efficacy (GSE), Environmental Passion (EP), and Pro-environmental Behavior (PB), was proposed. A survey of 270 university students indicated that the psychological impact of green climate significantly impacts pro-environmental behavior, mediated by green self-efficacy and environmental passion. Furthermore, GSE has been found to have a moderating effect in strengthening the impact of PSC on EP. The research findings provide evidence of how and when university green strategies can fuel green behavior among the younger generation. Additionally, a cognitive collection consisting of GSE and EP was found to play a vital role in translating the university's green climate into green behaviors.

1. Introduction

The 17 United Nations Sustainable Development Goals aim to mobilize resources from countries to solve wicked problems of economic, societal, and environmental matters. Higher institutions are believed to be vital actors (Pallant et al., 2020), given their responsibilities for honing the skills and knowledge of the future workforce about sustainable development (Dlouhá et al., 2019; Ketlhoilwe et al., 2020). Moreover, the younger generation is pivotal in promoting the SDGs' goal by implementing sustainable behavior in their lifestyle (Yamane & Kaneko, 2021). Therefore, Education for Sustainable Development Goals (ESDG) becomes necessary to use education and integrate SDGs into daily university activities (Alcántara-Rubio et al., 2022).

In achieving SDG goals, especially for contributing to the environmental dimension, the transition from the traditional model to a green university has been catching the attention of scholars in various cultural contexts (e.g., Anthony, 2021; Brandli et al., 2020; Zhu et al., 2020). Accordingly, universities have implemented many policies to become more environmentally friendly. These policies can be divided into four groups (Zhu et al., 2020): (1) academic (e.g., research, curriculum), (2) engagement (e.g., campus engagement, public engagement), (3) operations (e.g., energy management), and (4) planning and administration (e.g., coordination, green investment). Therefore, a wide range of activities in both academic and non-academic fields at the university could reflect teaching and learning activities, interrelationships, etc., and shape the university's climate (The National School Climate Council, 2007) that values being

green. Scholars have found that the school climate is essential for academic performance and related behaviors (see Daily et al., 2020). However, studies on school climate and its effect on students' behavior mainly focus on academics rather than how students apply formal and informal learning in daily life. For instance, despite the green transition in education emerging over several years, few studies explore if a university's green climate can motivate students to adopt sustainable behaviors beyond school.

Unlike prior studies that focused on integrating and evaluating criteria of green campus, we address the research gap by examining whether the psychological green climate students perceive from their university could drive pro-environmental behaviors. Drawing from social cognitive theory, we consider the interactions between triadic influences, including the external environment (green climate), personal factors (psychological processes of individuals), and behavioral outcomes (pro-environmental behavior). Specifically, we aim to provide evidence for scholars and practitioners on how a green climate changes individuals' cognition and affection, leading to pro-environmental behaviors. Furthermore, we study the moderating role of individuals' green self-efficacy to explain *when* a green climate could be translated into green thoughts and actions.

2. Literature background and hypotheses

2.1. Psychological green climate and pro-environmental behavior

The organizational behavior literature has confirmed the role of organizational factors such as climate or culture in defining the attitudes and behaviors of individuals (e.g., Altuntaş et al., 2021; Khan et al., 2020). Specifically, individuals tend to inherit values from the organizational climate, resulting in congruent behavior that aligns with their absorption (e.g., ethical behaviors corresponding to ethical climate) (see Al Halbusi et al., 2021). Similarly, in the field of educational management, there is agreement regarding the association between the academic environment and relevant outcomes (Cohen et al., 2009), with students playing a role the same as employees in the general management field by adopting school climate values to guide their thoughts and behaviors. Grazia (2022), for instance, found that four dimensions of school climate, including student relations, student-teacher relations, educational climate, and sense of belonging, along with interpersonal justice, could promote desirable outcomes among students, such as enhancing emotional engagement or reducing burnout. However, due to the distinct features of the educational sector, universities and schools perceive both parents and students as their customers.

Furthermore, students hold the dual roles of "customer" and "employees," receiving learning services while simultaneously "working" within the ecological system of the university or school. Hence, there has been a lack of consensus among scholars on the definition of school climate and how to measure it (Wang & Degol, 2016). In this research, we follow prior studies to adopt the definition of school climate from The National School Climate Council (2007), which reflects five dimensions: safety, teaching and learning, interpersonal relationships, institutional environment, leadership, and efficacy. In other words, the school climate must reflect the experiences of stakeholders regarding the norms, goals, relationships, and social mission of the school (Wang & Degol, 2016), such as translating specific values like morality or sustainability.

In recent years, sustainable activities contributing to the 17 United Nations' Sustainable Development Goals (SDGs) have become a priority for all countries. Since the educational sector plays a vital role in supporting, promoting, and contributing to the SDGs (Mori Junior et al.,

2019), we have observed a transition from a traditional university to a green campus as a means of achieving the SDGs (Zhu et al., 2020). Thus, green universities could implement various policies to reinforce the perception of environmental protection, such as issuing regulations and conducting lectures about ecological aspects. In this research, we focus on the psychological green climate that the young generation (students) could perceive within the university and investigate whether the social mission within the university climate could shape green behaviors that extend beyond academic boundaries to become the norm in daily life. Dumont et al. (2017, p. 04) defined psychological green climate as “the perception an individual has of the organization’s pro-environmental policies, processes, and practices that reflect the organization’s green values.” Accordingly, the psychological green climate is formed through social interactions in which individuals are exposed to policies and engage in green-related activities (Dumont et al., 2017). For example, universities could create a psychologically green climate by implementing education on sustainable development, using clean energy, managing waste, improving energy and water efficiency, and promoting sustainable transport (Ribeiro et al., 2021).

Drawing from social cognitive theory (Bandura, 1986), we propose that the green climate of universities could shape green-related behaviors among learners, leading to pro-environmental behavior in which they tend to act in environmentally friendly ways in their daily lives. Social cognitive theory provides a comprehensive framework representing triadic reciprocal interactions between environmental, personal, and behavioral processes. In this research, we propose a link between an external factor (university green climate) and behavioral outcomes among the younger generation. Schunk and DiBenedetto (2020) suggested that key processes related to environmental influences, such as instruction, standards, feedback, etc., could be connected to key behavioral influences, such as choice of activities, effort, or persistence. For instance, transitioning to a green model, universities promoting subjects that enhance students’ cognition about sustainability matters could enlighten learners and lead to corresponding behaviors, encouraging them to act in environmentally friendly ways. Specifically, the psychological green climate that individuals perceive from the university and the similarity of context from role models, such as peers and teachers, will serve as essential sources of information in defining their appropriate behavioral outcomes (Schunk & DiBenedetto, 2020). As such, the green climate could activate learning processes among individuals and result in the choice to practice green behavior among students. Consequently, the following hypothesis is proposed:

H1: Psychological green climate is positively related to pro-environmental behavior

2.2. Green self-efficacy as a mediator

Self-efficacy is related to individuals’ perception that they can successfully perform behaviors at a designated level (Bandura, 1977). Accordingly, self-efficacy plays a pivotal role in social cognitive theory since the root of the theory proposes that individuals are proactive in engaging their development and defining behavioral outcomes (Schunk & DiBenedetto, 2020; Schunk & Pajares, 2009). Furthermore, self-efficacy is not inherent to an individual’s nature but is shaped by external information influencing this cognitive process (Schunk & DiBenedetto, 2020). Specifically, through social cognitive theory (Bandura, 1986), self-efficacy is regarded as a personal determinant in triadic reciprocal interactions. Individuals are influenced by external determinants (e.g., organizational structure, climate, etc.) to define a certain level of personal determinants (e.g., self-efficacy, motivation), which then leads to appropriate behaviors. For instance, when students perceive a favorable external environment, such as a positive school climate (interpersonal relations and belonging), it could promote a sense of human agency that

enables students to have confidence in their thoughts and change their behaviors for better academic outcomes (Zysberg & Schwabsky, 2021).

Consistent with the research scope, we pay attention to green self-efficacy, which is mainly derived from the definition of general self-efficacy as “the belief in individuals’ capabilities to organize and execute courses of action required to achieve environmental goals” (Chen et al., 2015, p. 1172). Accordingly, green self-efficacy is also fueled by four primary sources, including (1) performance accomplishments, (2) vicarious experience, (3) verbal persuasion, and (4) emotional arousal (Bandura, 1977). The psychological green climate, characterized by policies, processes, or practices (Dumont et al., 2017) that universities implement in academic and other activities, could enhance personal determinants among students as they are exposed to green practices, gain knowledge from lectures, and perceive green guidance. Furthermore, students gain green cognition through observing (vicarious experience) academic staff and peers performing green actions. Next, the green climate sets norms for appropriate behavior reward systems that revolve around green-related activities, and university students are also expected to be persuaded (via verbal persuasion) to join green communities. Finally, several students possessing emotional states (e.g., concern for the environment’s harm) also gain green self-efficacy (Bandura, 1977). Consequently, students with higher self-efficacy can self-regulate by setting goals or strategies for achieving suitable behavioral outcomes (Schunk & Pajares, 2009). For example, Surjanti et al. (2020) demonstrated the importance of green activities such as lectures (participatory ecological learning) that enhance students’ self-efficacy and extend beyond school boundaries, fostering sustainable behaviors. As such, through the social cognitive perspective, we propose that the university’s green climate provides a positive environment for students to immerse in green experiences that could promote green self-efficacy and result in behaviors aimed at protecting the environment.

H2: Green self-efficacy mediates the relationship between psychological green climate and pro-environmental behavior

2.3. Environmental passion as mediator

Passion, which is defined as an attitude that comprises individuals’ cognitive and affective elements (Ho et al., 2011), could promote a wide range of desired behaviors in organizational behavior research. Since individuals’ mental and affective aspects strongly affect forming behaviors, passion is related to in-role (e.g., Appienti & Chen, 2020) and extra-role performance (Cho & Yoo, 2021). Vallerand et al. (2003) proposed a dual channel of passion consisting of obsessive and harmonious passions. Obsessive passion can result from internalization that makes individuals feel compelled to follow a particular activity (Vallerand et al., 2007), which may lead to adverse outcomes such as emotional exhaustion (e.g., Amarnani et al., 2020). On the other hand, when individuals feel autonomous and are willing to engage in the activity, which results from positive emotion, this could be regarded as harmonious passion (Vallerand et al., 2007). Accordingly, we adopted the definition of harmonious passion toward protecting the environment from Robertson and Barling (2013, p. 180) as “a positive emotion that results in an individual wanting to engage in pro-environmental behaviors” to examine the role of environmental passion in establishing a connection between a university’s green climate and individual behaviors.

Social cognitive theory proposes interactions between environmental influences, personal determinants (cognition or affection), and behavioral outcomes (Bandura, 1986). In this research, we suggest that ecological passion (a personal determinant) is promoted by the external

environment (green climate) and leads to behavior (pro-environmental behavior). Human agency, human capabilities, and vicarious learning are central components in social cognitive theory that could promote learning processes to shape behaviors (Nabi & Prestin, 2017). A sense of agency is a mechanism by which individuals perceive that they can control their thoughts or feelings (Nabi & Prestin, 2017). A university's green climate, which consists of incentives to encourage participation in green behaviors, could promote a certain degree of autonomy among students as they control the behaviors to benefit themselves (for getting rewards) and society. Moreover, students who embrace a psychologically green climate also perceive knowledge by reflecting on environmental problems and exchanging green information with academic staff or peers to form human capabilities (Nabi & Prestin, 2017), which motivates them to behave consistently with their learning. Since environmental passion comprises cognitive and affective elements, which reflect a degree of self-control (Vallerand et al., 2007), an external environment such as a green climate could fuel human agency and activate the learning process to guide thoughts on environmental matters. Besides, by observing appropriate norms, environmental-friendly behaviors could strengthen personal influence among university students (vicarious learning), leading to the implementation of pro-environmental behavior. In addition, empirical studies have found the effect of a green climate in shaping an individual's psychological processes (e.g., Afidi et al., 2023; Jnaneswar, 2023) for promoting green behaviors. From the above discussion, taking into account the view of social cognitive theory and empirical studies in the field of organizational behavior, we hypothesize:

H3: Environmental passion mediates the relationship between psychological green climate and pro-environmental behavior

2.4. The moderating role of green self-efficacy

Self-efficacy is crucial in social cognitive theory since learned behaviors may not be exhibited if individuals do not possess confidence in their abilities (Nabi & Prestin, 2017). Bandura (1997, p. 02) proposed that "people's motivation, affective states, and actions are based more on what they believe than on what is objectively true." Students with high self-efficacy could shape their cognitive, affective, and behavioral activities to better engage in learning (Schunk & DiBenedetto, 2020; Sökmen, 2021). In the scope of green-related studies, individuals' self-efficacy also plays a role in strengthening the intention to behave greenly (Tawde et al., 2023).

Drawing from social cognitive theory, self-efficacy may not solely affect the personal and behavioral determinants if individuals lack the resources to sponsor the activities (Nabi & Prestin, 2017). Under the university's green climate, where students perceive academic and non-academic activities that aim to protect the environment, it could provide a reliable resource for individuals to define their thoughts and actions. Hence, green self-efficacy is supposed to play a buffering role in the relationship between students' perception of the university's green climate and personal influence (environmental passion) and behavioral outcome (pro-environmental behavior). Moreover, prior studies in higher institutions also found a linkage between green self-efficacy and green behavior, such as green purchases (Sh. Ahmad et al., 2022) and green consumption behavior (Farliana et al., 2023). However, studies on green self-efficacy in universities, which acts as a buffer in the channel from universities' green policies to individuals' psychological processes and behaviors, are scarce. Thus, to contribute to the research gap and to better understand how to promote green processes among the younger generation, we draw from the social-cognitive perspective and propose the following hypotheses:

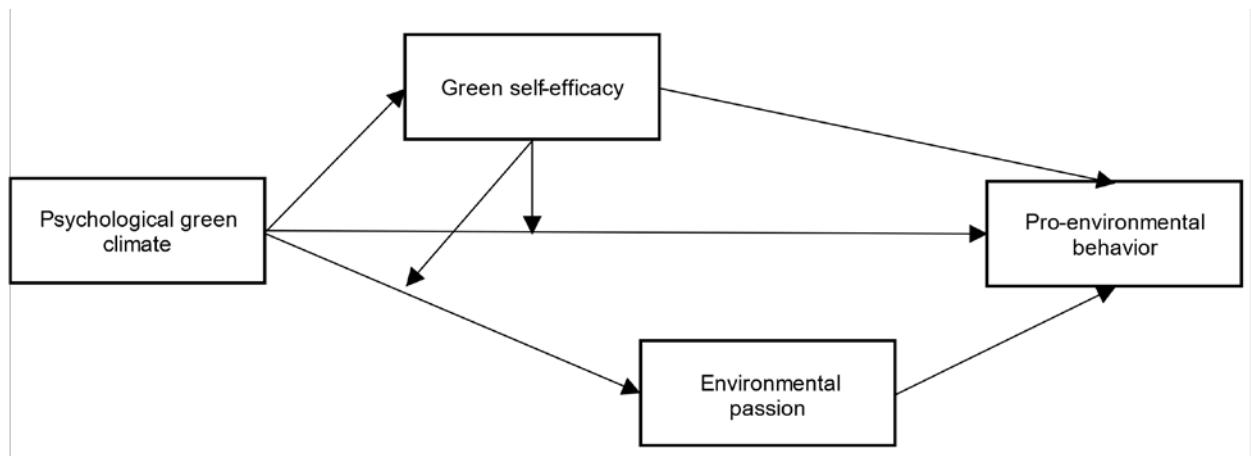
H4a: Green self-efficacy moderates the relationship between psychological green climate and environmental passion, such that the relationship will be stronger under higher green self-efficacy

H4b: Green self-efficacy moderates the relationship between psychological green climate and pro-environmental behavior, such that the relationship will be stronger under higher green self-efficacy

Figure 1 depicts the relationships among the constructs in the research.

Figure 1

Theorized Model



Source. Developed by authors

3. Research methodology

3.1. Participants and procedure

We recruited university student volunteers to participate in the research. Due to limited research resources, the convenience sampling method was employed. The sampling procedure involved the collection of responses from Vietnamese universities. The electronic version of the questionnaire was sent to available respondents studying majors in business administration, public management, law, and public finance. Participants were asked to self-rate their university's green activities, green self-efficacy, environmental passion, and green behaviors in daily life. All questions are designed to be rated on a Likert 5-point scale ranging from 1 (totally disagree) to 5 (totally agree). To estimate the minimum sample size, we employed the 10-times rule, the most popular research method utilizing the PLS-SEM approach (Kock & Hadaya, 2018). Specifically, the hypothesized model comprised seven relationship paths, yielding a rationale for a minimum sample size of 70.

Of the participants, 206 were female (76.3%), 62 were male, and 02 participants opted not to share their gender information. Most respondents were between 18 and 20 (90.7%), and a few were between 21 and 23 (9.3%). Regarding university tenure, 57.8% were first-year students, 17% were sophomores, 18.5% were third-year students, and 6.7% were final-year students.

3.2. Measures

Psychological green climate. The psychological green climate was measured by adapting five items from Dumont et al. (2007) to evaluate university students' perceptions of the extent to which their university incorporates green practices into academic activities. Example items include "My university provides a green training program to develop the necessary knowledge

and skills for individuals in green management" and "My university relates students' green behavior to reward activities, scholarships, etc."

Green self-efficacy. The confidence in the competence of individuals to perform green behaviors was assessed using five items adopted from Chen et al. (2015). Examples are "I can perform effectively on environmental missions" and "I feel I can succeed in accomplishing environmental ideas".

Environmental passion. We employed a ten-item scale from Robertson and Barling (2013) to evaluate harmonious environmental passion among university students. Examples are "I enjoy practicing environmentally friendly behaviors" and "I have voluntarily donated time or money to help the environment somehow".

Pro-environmental behavior. Using 07 items from Robertson and Barling (2013), we measured university students' pro-environmental behavior. Example items include "I print double-sided whenever possible" and "I put recyclable material (e.g., cans, paper, bottles, batteries) in the recycling bins".

3.3. Data analysis strategy

The research employed Partial Least Square SEM to examine the theorized model. Following Hair et al. (2019), we evaluated the measurement model to ensure internal consistency, convergent validity, and discriminant validity meet all the required criteria. Then, the structural model was tested by assessing the collinearity issue, in-sample and out-of-sample power, and the significance of path coefficients.

3.4. Common method bias

We employed multiple techniques to avoid common method bias in behavioral studies (Podsakoff et al., 2003). First, we encouraged the participants to provide their thoughts on the questionnaire without concern for right or wrong answers. All their responses will be kept confidential and only used by the authors for research. Second, we performed Harman's one-factor test (Podsakoff & Organ, 1986), and no single factor exceeded 50% of the variance.

4. Result in findings

4.1. Measurement model

The internal consistency of the reflective measurement model was assessed using Composite Reliability (C.R.) and Cronbach's Alpha. Hair et al. (2017) recommended that constructs' reliability be higher than 0.7 but not surpass 0.95 to prevent redundancy, as this indicates that all indicators measure the same phenomenon. Furthermore, since the value of Cronbach's Alpha tends to be conservative. At the same time, the composite reliability is more liberal; the true reliability for evaluating constructs lies within the range of [Cronbach's Alpha - C.R.] (Hair et al., 2017). As such, the measurement model satisfied the internal consistency for all of the constructs that meet the reliability criteria (see Table 1), ranging from pro-environmental behavior [0.894:0.916] to environmental passion [0.941:0.950].

Outer loadings and AVE were assessed to examine the convergent validity. The loadings of indicators need to exceed the threshold of 0.7 (Hair et al., 2017) to ensure indicator reliability. As illustrated in Table 1, all indicators' loading values meet the criteria. Finally, to report convergent validity, the AVE of each measure needs to be higher than 0.5. Table 1 shows that AVE values vary between 0.611 (pro-environmental behavior) and 0.739 (green self-efficacy), indicating the convergent validity of the measurement model.

Table 1*Internal Consistency and Convergent Validity*

Constructs	Internal consistency		Convergent validity	
	Composite reliability	Cronbach's Alpha	Loadings	AVE
<i>Psychological Green Climate - PGC</i> <i>(Adapted from Dumont et al., 2017)</i>	0.927	0.901	-	0.719
My university sets green goals for everyone (faculty members, students, etc.)			0.801	
My university provides everyone with green training to promote green values			0.910	
My university provides a green training program to develop the necessary knowledge and skills for individuals in green management			0.875	
My university considers everyone's green behavior in performance appraisals			0.844	
My university relates students' green behavior to reward activities, scholarships, etc.			0.804	
<i>Green self-efficacy - GSE</i> <i>(Chen et al., 2015)</i>	0.934	0.911	-	0.739
I feel I can succeed in accomplishing environmental ideas			0.791	
I can achieve most of the environmental goals			0.881	
I can perform effectively on environmental missions			0.868	
I can overcome ecological problems			0.896	
I could find creative solutions to environmental problems			0.858	
<i>Environmental passion - EP</i> <i>(Robertson & Barling, 2013)</i>	0.950	0.941	-	0.653
I am passionate about the environment			0.813	
I enjoy practicing environmentally friendly behaviors			0.814	
I enjoy engaging in environmentally friendly behaviors			0.831	
I take pride in helping the environment			0.779	
I enthusiastically discuss environmental issues with others			0.822	
I get pleasure from taking care of the environment			0.846	
I passionately encourage others to be more environmentally responsible			0.822	
I am a volunteer member of an environmental group			0.744	
I have voluntarily donated time or money to help the environment in some way			0.785	
I feel strongly about my environmental values			0.822	

Constructs	Internal consistency		Convergent validity	
	Composite reliability	Cronbach's Alpha	Loadings	AVE
Pro-environmental behavior - PB (Robertson & Barling, 2013)	0.916	0.894	-	0.611
I print double-sided whenever possible			0.700	
I put compostable items in the compost bin			0.817	
I put recyclable material (e.g., cans, paper, bottles, batteries) in the recycling bins			0.785	
I bring reusable eating utensils to work (e.g., travel coffee mug, water bottle, reusable containers, reusable cutlery)			0.803	
I turn lights off when not in use			0.763	
I take part in environmentally friendly programs (e.g., bike/walk to work day, bring your local lunch day)			0.806	
I make suggestions about environmentally friendly practices to managers and/or environmental committees to increase my organization's environmental performance			0.792	

Source. Table by authors

A Heterotrait-monotrait (HTMT) ratio of correlations was used to test the discriminant validity of the measurement model. Because the concepts of our research model are distinct and categorized by the external environment (psychological green climate), personal influences (environmental passion and green self-efficacy), and behavior (pro-environmental behavior), the required threshold for correlations between constructs should be below the value of 0.85 (see Henseler et al. (2015) for the comparison between the thresholds of 0.85 and 0.90 for the HTMT ratio). Table 2 displays a ratio within the acceptable threshold (< 0.85) among the correlations of research constructs. Thus, the measurement model gained discriminant validity.

Table 2

HTMT Ratio

	Pro-environmental behavior	Environmental passion	Psychological green climate	Green self-efficacy
Pro-environmental behavior				
Environmental passion	0.771			
Psychological green climate	0.564	0.446		
Green self-efficacy	0.664	0.751	0.452	

Source. Table by authors

4.2. Structural model

To avoid the collinearity issues, we examined VIF values. Accordingly, the threshold predictor constructs' tolerance should be below the value of 05 (Hair et al., 2017) (see Table 3). Next, we calculated R^2 to assess in-sample predictive power, and the values of 0.75, 0.50, and 0.25 are considered substantial, moderate, or weak, respectively (Hair et al., 2017). As shown in Table 4, the R^2 value of the targeted construct (pro-environmental behavior) ($R^2 = 0.575$) suggested moderate predictive accuracy. The out-of-sample predictive power was estimated using the blindfolding technique to examine Stone-Geisser's Q^2 value. The acceptable value for Q^2 is above zero and indicates a medium level of predictive accuracy for the targeted construct (Q^2 of pro-environmental behavior = 0.342) (Hair et al., 2019).

Table 3

VIF Values

	Environmental passion	Green self-efficacy	Pro-environmental behavior
Environmental passion			2.017
Green self-efficacy	1.203		2.015
Psychological green climate	1.203	1.000	1.249

Source. Table by authors

Table 4

Model Fit Indices

	R^2 value	Q^2 value
Environmental passion	0.504	0.336
Green self-efficacy	0.169	0.122
Pro-environmental behavior	0.575	0.342

Source. Table by authors

To test whether psychological green climate has effects (direct and indirect) on pro-environmental behavior as well as the moderating role of green self-efficacy, we conducted a bootstrapping procedure (subsamples = 5,000) (see Table 5). The psychological green climate significantly affected pro-environmental behavior ($\beta = 0.243$; p -value = 0.000), so Hypothesis 1 was supported. Besides, the indirect effects of green climate on pro-environmental behavior have also been confirmed. Specifically, green self-efficacy and environmental passion were found to hold a mediating role in bridging the gap between the university's green climate and the student's environmental-oriented behaviors, so the Hypothesis 2 ($\beta = 0.066$; p -value = 0.037; LL/UL = 0.012/0.136) and Hypothesis 3 ($\beta = 0.093$; p -value = 0.005; LL/UL = 0.034/0.165) were supported. For evaluating the moderating effects, the interaction term *psychological green climate* \times *green self-efficacy* was found to significantly affect environmental passion ($\beta = 0.096$; p -value = 0.002), and the confidence intervals bias corrected did not contain zero (LL/UL = 0.013/0.143), so Hypothesis 4a was supported. Finally, the data analysis results indicated that green self-efficacy has a non-significant effect when hypothesized as a moderator in the relationship between psychological green climate and pro-environmental behavior; thus, H_{4b} was unsupported.

Table 5*Hypotheses Testing*

Hypothesis	Path description	Path coefficient	Results
H ₁	Psychological green climate → Pro-environmental behavior	0.243***	Supported
H ₂	Psychological green climate → Green self-efficacy → Pro-environmental behavior	0.066*	Supported
H ₃	Psychological green climate → Environmental passion → Pro-environmental behavior	0.093**	Supported
H _{4a}	Psychological green climate × Green self-efficacy → Environmental passion	0.096**	Supported
H _{4b}	Psychological green climate × Green self-efficacy → Pro-environmental behavior	0.025	Unsupported

Note. *p < 0.05; **p < 0.01, ***p < 0.001

Source. The data are from the authors

5. Discussion

5.1. Discussion of the results

The data analysis found that the university's psychologically green climate could enhance students' cognitive processes and behavioral outcomes. First, a green environment in the university was found to fuel students' behavior in implementing their daily environmentally friendly behavior. The findings are consistent with previous education research that utilizes school climate to shape student behavior (e.g., Wang & Degol, 2016) and expand the scope to include the university's green practices. However, distinct research studies show that dual channels of passion and self-efficacy could bridge the gap between the external environment (psychological green climate) and the outcome. These mechanisms provide a specific explanation of how school climate can influence student behavior, adding specific mechanisms to further expand upon prior studies that indicate students' perceptions about their school can shape the corresponding response (e.g., Gol-Guven, 2017). Finally, student green self-efficacy was also found to significantly alter the relationship between the university's green climate and environmental passion in fostering the association. As such, the results provided a deep understanding of when a green environment could enhance students' passion, leading to green behaviors. An unsupported hypothesis (H_{4b}) mentioned the moderating role of green self-efficacy in the nexus between psychological green climate and pro-environmental behavior. Our assumption regarding the non-significant effect of green self-efficacy is based on the green self-efficacy concept. Since green self-efficacy primarily refers to a cognitive process in which individuals engage to set plans for achieving objectives (Schunk & Pajares, 2009), it may serve as a mediating effect that links green climate and green behavior. However, when tested as a moderating factor, this cognitive element may not be strong enough to facilitate the influence of external determinants on behavioral consequences.

5.2. Theoretical implications

The research provided deep insights into how a green climate in universities could enhance students' pro-environmental behavior. Several theoretical contributions were made regarding the data analysis results. First, we have enriched the stream of research related to studying school green climate. The research on organizational green climate has been widely conducted in other fields (e.g., management healthcare) but has received insufficient attention in education. Moreover, the study is among a scarcity of research that delves into the effect of a green organizational climate on the behavioral outcomes of students, who are a particular type of customer in educational services.

Second, the research explained how a university's green climate could promote "green transition" in psychological processes. Recent studies in the management field have found a direct correlation between psychological green climate and environmental behavioral outcomes (e.g., Biswas et al., 2021; Norton et al., 2017; Zientara & Zamojska, 2018). The study went deeper into the mediating mechanism in which the psychological green climate of organizations could enhance green self-efficacy, causing individuals to believe in their capacity to be green in daily life and lead to green behaviors. Moreover, a psychologically green climate has also been found to affect students' motivational processes by promoting environmental passion. Accordingly, students with a certain level of passion for ecological matters could go beyond the boundaries of the university and practice a green lifestyle.

Third, prior studies found that self-efficacy could define intention to participate in green action (e.g., Tawde et al., 2023). The present research discovered that students with elevated levels of self-efficacy tend to enhance the absorption of green values from the university. Notably, green self-efficacy could improve the effect of a psychological green climate on environmental passion. Subsequently, the student's passion would be translated into pro-environmental behavior. The finding of self-efficacy as a moderator in the connection between the external environment and personal determinant (environmental passion) also suggested that confidence in green values may have varying predictive power within the social cognitive theory framework. Despite the hypothesized behavioral outcome (pro-environmental behavior) sharing the consistent value with external determinants, we did not find the moderating effect of green self-efficacy in enhancing the impact of green climate on green behavior.

5.3. Managerial implications

The research provides valuable insights for educational practitioners. First, the university's green climate needs to be implemented widely since it could be a potential solution for contributing to SDGs regarding environmental aspects. Universities could vary their green activities, including developing green-related curricula, enhancing green training capacities, and organizing seminars and competitions related to environmental protection. Moreover, since green self-efficacy is an essential link between a green climate and green behavior, universities, in implementing a green environment, need to devise specific guidance, establish a green model (e.g., academic employees), and encourage students to participate in drafting the university's green policy, which could enhance their confidence to perform as green standard. For example, university managers could regularly meet with students to exchange green ideas or directly join student-led green projects to promote green self-efficacy. Besides, since green passion comprises cognition and affection, universities could link a reward system to green actions to enhance students' perception of green policies and promote the affective side that drives students to practice green behavior. Finally, since green self-efficacy holds dual roles as both a moderator

and a mediator, we suggest practitioners seek additional empirical evidence to promote this psychological process beyond the psychological green climate. For example, scholars found various factors at multiple levels could promote green self-efficacy, such as shared vision (Chen et al., 2015) or leadership (Mughal et al., 2022).

5.4. Limitations and future research directions

Several limitations in this research must be acknowledged for further investigations. First, the study collected data from a self-rating survey, which may contain bias. For example, the students may have overestimated the level of their green behaviors, not reflecting the actual phenomenon. Thus, future studies must collect data from multiple sources, such as peer perceptions of participants' green behaviors, to reduce potential deviations. Second, there was a limitation related to the research context because we only focused on one country, and the results may not be generalizable in other cultural contexts. Future studies could re-examine the theorized model in other Asian countries with similar national cultures to confirm the results or be conducted in Western countries to do comparative research. Finally, the research could not comprehensively include all outcomes to depict the effects of a green climate. Future studies need to explore additional outcomes, such as green buying behaviors, or investigate other mechanisms (moderating and mediating effects) that facilitate translating a university's green climate into pro-environmental behavior.

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