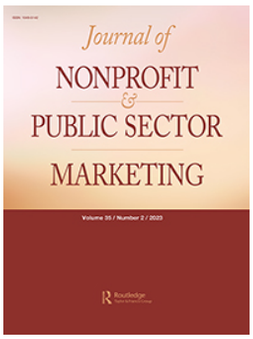

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Self-Image and Green Buying Intentions among University Students: The Role of Environmental Concern and Social Influence

Gabriel Simiyu and Valentine W. Kariuki

School of Business and Management Science, University of Eldoret, Kenya

ABSTRACT

The current study presents a research model that elucidates the mechanism through which self-image influences green buying intentions among university students. Little is known about these mechanisms as well as the circumstances under which any such effects are strengthened or weakened. This study attempted to fill this void by investigating how environmental concern serves as an explanatory mechanism for the relationship between self-image and green buying intention, with social influence moderating this relationship. Based on survey data from 384 university students, environmental concern mediated the impact of self-image on green buying intention, and social influence had a conditional effect on self-image, environmental concern, and green buying intention. The findings also indicate that social influence moderated the indirect effect of self-image on green buying intention through environmental concern, with the indirect effect being stronger when social influence was low versus when it was high. These results add to the body of knowledge and provide new insights into theory and practice. The practical implications and future research directions are also discussed.

KEYWORDS

Green buying intention; Self-image; environmental concern; social influence; environmental sustainability; green consumerism

Introduction

Consumers' increased awareness of rapid industrialization and environmental risks has led to the adoption of more environmentally friendly lifestyles. Environmental sustainability has become a major concern not only for consumers but also for scholars and practitioners. This is because, in recent years, the world has witnessed an enormous increase in global warming, flooding, desertification due to the destruction of natural resources, massive displacement of people, greater competition for scarce resources, and pollution. Our ecosystems, oceans, and weather patterns have been threatened and destroyed because of our lives and the way we do things (Pham et al., 2019; Sherwani & Ali, 2017; White et al., 2019; Zelenika et al., 2018). This needs to be addressed immediately to reverse the situation. If not handled now, future generations will face a significant challenge. To better understand the challenges of green consumption and why people prefer

CONTACT Gabriel Simiyu gabriel.simiyu@uoeld.ac.ke School of Business and Management Science, University of Eldoret, Eldoret 1125-30100, Kenya

sustainable consumption, researchers have long sought to understand the consumer's decision-making process, including why they choose green products and what factors influence them (N. Sharma et al., 2019).

Green consumption and environmental sustainability have emerged as key marketing topics (Blose et al., 2020; S. Li et al., 2020; Nguyen & Nguyen, 2020; Teoh & Gaur, 2019; Xu et al., 2019) which are seen as solutions to environmental issues (Naidoo & Verma, 2019). Despite several studies that have been conducted to understand consumer preferences for green consumerism in various environments, little is known about the mechanisms and conditions under which this behavior can be enhanced. This study seeks to fill this gap by incorporating environmental concern as a mediator and social influence as a moderator on the influence of self-image and green buying intentions particularly among young consumers (university students).

According to Zelenika et al. (2018), there is an exciting opportunity for change makers to develop new and creative ways to encourage responsible consumption and resource management and introduce sustainable policies and practices through both private and public life. While past studies (Debevec et al., 2013; Liu & Lin, 2015; Naderi & Van Steenburg, 2018; Olsson & Gericke, 2016) have all suggested that environmental interest among students is lower in higher education and that they have little knowledge of the environment as a whole, we argue that university students have a better perspective on understanding environmental issues (Blose et al., 2020; Muralidharan et al., 2016; Șterbuleac & Toma, 2020). These contradictory findings suggest that a better understanding of issues that inspire young consumers to demonstrate pro-environmental buying behavior is required.

Companies should no-longer be profit-oriented only but should rather shift their focus into developing new ideas, strategies, and policies to help them run their businesses more sustainably. This is because consumers are now more environmentally conscious (Chan & Lau, 2002; Di Martino et al., 2019; Paladino & Ng, 2013) and engage in some pro-environmental buying behavior (Frank, 2021; Di Martino et al., 2019; Mostafa, 2006). The demand for eco-friendly products by consumers has, in turn, led to the concept of "green consumerism". Green or environmentally friendly products are generally described as goods which do not pollute the environment or deplore natural resources and can be recycled or conserved (Frank, 2021; Mostafa, 2006). According to Duarte and Cruz-Machado (2019), the Green Paradigm attempts to minimize environmental hazards and adverse environmental impacts while at the same time increasing sustainable productivity and minimizing environmental waste.

To fully understand the behavior of young consumers with regards to the environment, it is important to look at how students view environmental problems and how these views affect their behavior when it comes to their buying decisions. Higher education plays a crucial role in fostering environmental behavior and solutions, as it seeks to cultivate responsible, capable

individuals with knowledge, skills, and values that will lead to an environmentally sustainable and better world (Vicente-Molina et al., 2013). Unfortunately, deliberate studies into the assertions of these young consumers in developing countries about their pro-environmental actions and the relationship between these inferences are close to non-existent; hence, carrying out a study in this context by focussing on young consumers who shape our future generation is a noble course (Pham et al., 2019).

Aman et al. (2012) defined green buying intention as the willingness of an individual to consider and prefer environmentally friendly products rather than conventional or traditional products in the decision-making process. A green product is described by Mohd Suki (2016) as a product that offers a significant eco-advantage over its competitors and is able to attract customers who place a high priority on green purchases. It is a product that aims to protect or improve the environment, conserve energy or natural resources, and minimize or remove the use of hazardous contaminants and waste (Malik et al., 2019). It includes a range of features and benefits that come with a minimal adverse environmental effect and a positive impact on customers by increasing their environmental concerns (Mohd Suki, 2016).

Literature has shown that intention has the greatest potential to influence the actual buying of the green product and is the best indicator of green purchasing behavior (Chan, 2001). According to the Theory of Planned Behavior, the individuals' intention is a pivotal determinant of their actual buying behavior (Han & Stoel, 2017; Jain, 2019; Kautish et al., 2019; Paladino & Ng, 2013). This means that the stronger the intention to buy the green product, the higher the probability that a consumer will make that purchase. This is supported by Bergeron (2004), who postulates that intentions are the best predictor of an individual's behavior because they enable each individual to independently integrate all relevant factors that influence actual actions.

Numerous studies have been undertaken in the past to identify factors that affect green buying intentions (Blose et al., 2020; Chan & Lau, 2002; Clark et al., 2019; Jain, 2019; Lee, 2010; Mohd Suki, 2016; Mostafa, 2006; Muralidharan et al., 2016; Paladino & Ng, 2013; Tan et al., 2019). However, as previously stated, the nature of consumer green purchasing behavior has resulted in different findings in different demographic contexts (Di Martino et al., 2019; Pham et al., 2019). Additionally, similar studies are still lacking in developing countries (Banga, 2019; Kautish et al., 2019; Al Mamun et al., 2018; Pham et al., 2019; Saleki et al., 2012; Trang et al., 2019). In addition, little is known about the mechanisms and conditions under which such relationships are enhanced or attenuated (Afsar et al., 2020). This supports further research in this field, which the current study aims to fill by incorporating both environmental concern and social influence as a mediator and moderator respectively, on the relationship between self-image and green buying intentions.

Literature review and hypotheses development

Self-image and green buying intention

Self-image is how a consumer perceives himself or herself (Shin, 2020). It is a person's sense of self that relates to their system of values, goals, and beliefs (Binder et al., 2020). Self-image has also been referred to as self-identity or self-concept (Van der Werff et al., 2014). Han and Stoel (2017) describe it as the predominant part of an individual's self that corresponds to a particular action that demonstrates the degree to which a person sees himself or herself as meeting the requirements of some social status. This implies that the more likely consumers are to think of themselves as green consumers, the more optimistic their mind-set is and the greater their desire to buy green products. It is, therefore, the degree to which you consider yourself someone whose actions are environmentally friendly. This prescribes a course of action that is consistent with a sense of who you are and thus promotes sustainable actions.

According to Blose et al. (2020),one of the main predictors of green purchasing behavior is self-image. On several occasions, customers are seen to conserve and improve the environment by altering their self-images by buying green products and services and often adhere to brands that, in their view, are eco-friendly and consistent with the individual's self-image and, in the same manner, ignore certain brands and businesses that are not environmentally sustainable in their view. Self-image can influence the behavior people engage in (Van der Werff et al., 2014).

In a study by Patel et al. (2020), it was noted that among the numerous behavioral precursors investigated by researchers, self-identity strongly correlates with green buying intention. The authors argue that people who have a dominant green self-identity and believe that their actions can help improve environmental problems can be targeted not only to replace non-green goods with eco-friendly ones but also to become future ambassadors and proponents of a green lifestyle. According to Hansmann et al. (2020), "green self-identity" construct, which has often been overlooked in prior studies, deserves more attention in future studies aimed at developing environmental behavior models. Their findings reveal that self-identity was found to have the strongest positive influence on pro-environment behavior among university students and staff.

In addition, green self-identity and self-congruity have been recognized in literature as potential drivers of consumer intention to buy and switch to eco-friendly products (Confente et al., 2020; Klabi & Binzafrah, 2022; Perera et al., 2021). Furthermore, when consumers perceive the values epitomized in sustainable products to be consistent with their environmental desires, anticipations, and viewpoints, they demonstrate favorable attitudes and behaviors toward such product offerings (Klabi & Binzafrah, 2022).

In the Meta-Analytic Study of the Theory of Planned Behavior by Han and Stoel (2017), self-identity was found to be one of the variables that displayed

strong predictive power in explaining socially responsible buying behaviors. This assertion has been supported by several studies (Adnan et al., 2017; Dagher & Itani, 2014; Khare, 2015; Lee, 2008; Moon et al., 2021; Naderi & Van Steenburg, 2018; Sirgy, 2015; Suki & Suki, 2019; Xu et al., 2019) which have all confirmed that self-image (self-identity) influences consumers' decisions to buy green products. Customers' attitudes and purchase intentions have been found to be positively influenced by self-image (Oliver & Lee, 2010) congruence, emotional value, and product symbolic representation (C.-Y. Chen et al., 2022). As a result, the more closely the product information matches the consumer's self-concept, the more likely it is to gain their attention, recognition, and retention (Liu et al., 2020).

Interestingly, self-identity was not a substantial predictor of young consumers' recycling behavior in the U.S and China, as indicated in a study done by Blose et al. (2020). Other previous studies (Irawan & Darmayanti, 2012; Wahid et al., 2011) did not also find a significant effect of self-image on green purchasing behavior.

Environmental concern and green buying intention

Environmental concerns have been described as the degree to which people are aware of environmental issues and their willingness to address those concerns (Alibeli & Johnson, 2009; Shukla, 2019). It is the general mindset or interest focused on environmental protection (Bhatt et al., 2019). Concerns are the perception or attitude toward the facts of one's own behavior or the conduct of others that has an environmental impact (Jiang & Gao, 2019). According to Muralidharan et al. (2016), the more concerned a customer is about the environment, the more likely his or her buying behavior is to change. This is supported by Aman et al. (2012), who assert that environmental concerns have a significant effect on consumer purchasing patterns, which has contributed to an increase in the proportion of consumers buying environmentally friendly products today. People who are deeply concerned about the environment are more likely to have a strong desire to buy green goods (Heo & Muralidharan, 2019).

Despite the importance of environmental concerns on green buying intentions, past studies have also yielded mixed findings (Shukla, 2019). For example, B. Sharma et al. (2017) observed that green consumers with greater environmental interests display planet-protective actions by engaging in recycling programs and agreeing to pay higher prices for green products. Several other studies,(Albayrak et al., 2013; Aman et al., 2012; Barber, 2014; Bhatt et al., 2019; García-Maroto et al., 2020; Konuk, 2018, 2019; Lee, 2009; Mostafa, 2006; Muralidharan et al., 2016; Shukla, 2019) have all indicated that the higher the environmental concern of the consumer, the higher the tendency of engaging in pro-environmental products or green behavior.

However, other studies have shown contradictory findings. For example, a study by Malik et al., (2019) showed that environmental concerns were weak enough to predict green buying behavior in the study respondents. Additionally, Hwang (2016) found that environmental concerns do not influence the buying intentions of organic food in either older or younger consumers. These contrary results have been further reported in other studies (Alibeli & Johnson, 2009; Choi & Johnson, 2019; Han et al., 2009; Do Paço et al., 2013; Pham et al., 2019; Wray-Lake et al., 2010; Yadav & Pathak, 2016) which indicated that environmental concern did not influence customers' intentions toward green products. The existence of such contradictory results offers more room for investigation (Gao et al., 2020).

Aside from the previously mentioned direct effects, few studies have investigated the mediating roles of environmental concern, which have also yielded contradictory results. For example, a study by Malik et al. (2019) discovered that environmental concern does not mediate the research variables in a study on revisiting green purchase awareness and behavior targeting fast food customers from major cities in Pakistan. This insignificant mediation is also reported in the work of Y.-S. Chen et al. (2020) on how personality affects environmentally responsible behavior through attitudes toward activities and environmental concern in Taiwan. Their findings indicated that environmental concern does not mediate the relationship between personality and environmentally responsible behavior.

However, Ahmed et al. (2021) in a study on the purchase intention toward organic food among young consumers in four provinces of China, namely, Jiangsu, Shanghai, Beijing, and Sichuan, found that environmental concern positively mediates the relationship between attitude and young consumers' buying intentions for organic food. In addition, Sadiq et al. (2020) on dispositional traits and organic food consumption in India found that environmental concern mediates the proposed indirect relationships between consumer optimism and organic food consumption behavior as well as consumer pessimism and organic food consumption behavior. In a study done in Japan, Dhir et al. (2021) also found that environmental concern mediates the relationship between environmental knowledge and green trust among retail consumers who buy green apparel. This mediation effect is also reported by Yue et al. (2020) on the impact of consumer environmental responsibility on green consumption behavior in China. The mediating effect of environmental concern has also been confirmed by Umrani et al. (2020) on greening the workforce to achieve environmental performance in the hotel industry in Pakistan and in a study by Enzler et al. (2019), whose study focused on how environmental concern and future orientation predict metered household electricity use, with findings confirming the mediating power of environmental concern.

Based on a variety of previous studies, one important aim of the current study was to determine how consumers' level of environmental concern

mediates the relationship between self-image and green buying intention. Thus, we hypothesize that:

H1: *Environmental concern mediates the relationship between self-image and green buying intention.*

The conditional effect of social influence and green buying intentions

The moderator is a variable that influences the magnitude of the interaction between the predictor and the dependent variable (Higueras-Castillo et al., 2019). There is a growing interest among researchers in trying to identify the variables that influence the strength of the interaction between exogenous and endogenous variables. The current study investigates how social influence can exert a conditional effect on the relationship between the study variables.

Social influence is an individual's understanding of the probability that a potential referent group (such as family or friends) or individual may approve or disapprove of performing a behavior (Shahriari et al., 2019). It requires believing in social pressure to engage in the behavior. Reference groups are especially important to people as they provide a reference point for comparing their individual values, perceptions, and behaviors (Clark et al., 2019). Several studies suggest that social influence is significant in explaining green behavior. For example, a study done by Khare (2019) found that peer group opinion plays a critical role in shaping customer perceptions of green apparel benefits. Social influence has been found to be an important driving factor that affects sustainable consumption (Geng et al., 2017).

According to Clark et al. (2019), in the face of social pressures, individual customers may stop engaging in actions that break social norms that call for punitive societal penalties. This was supported by their study, which indicated that social influence is a strong predictor of green consumerism. Several other studies (Delcea et al., 2019; Khare, 2019; Ojo et al., 2019; Paladino & Ng, 2013; Suki & Suki, 2019; White et al., 2019; L. Zhao et al., 2019) have pointed out the vital role that social influence plays in the consumer decision-making process. However, contradictory results of this relationship have been reported in the literature (Paul et al., 2016; Varshneya et al., 2017), which found that social influence (subjective norm) does not influence green buying intentions.

Recent studies (Kashif et al., 2019; Suki & Suki, 2019; Wang et al., 2019; Youn & Jin, 2017) have documented the moderating role of social influence in different contexts. The choice of this variable for interaction with other study variables is based on the study of Wang et al. (2019), whose study considered the interaction effects of subjective norms and attitudes and recommended that future studies should consider other interaction effects. Based on the above discussion, we **hypothesize** that;

H2: *Social influence exerts a conditional effect on the relationship between self-image and green buying intentions.*

H3: *Social influence exerts a conditional effect on the relationship between environmental concern and green buying intentions.*

H4: *Social influence exerts a conditional effect on the indirect relationship between self-image and green buying intentions via environmental concern.*

Methodology

Sample size and data

The current study focused on undergraduate students (young consumers) as the target group based on the assumption that well-educated young people appear to be more environmentally conscious than others (Taufique & Vaithianathan, 2018). Furthermore, as they learn about sustainable consumption at school, these young consumers will be more concerned about the future of the environment (Rex et al., 2015). Thus, understanding the pro-environmental consumer behavior of this educated younger generation, who represent future consumers and society's future, is critical for developing long-term marketing strategies tailored to the target group (Taufique & Vaithianathan, 2018). Other studies (Hansmann et al., 2020; Valor et al., 2020) have indicated that environmental understanding, perceptions, and beliefs, as well as attitudes and behaviors of young university students, are of special interest because university education intends to prepare them for important future societal responsibilities as scholars, specialists, and prospective policymakers. As a result, they can have an impact on green consumerism and sustainability not only through their individual behaviors but also as innovators and figureheads in their professional fields, by creating innovative products and services that enhance sustainability in their work place and society at large. In addition, young people are more easily influenced than older ones (Massaro et al., 2018). Hence, to achieve sustainability goals and enhance green consumerism, people's personal environmental behaviors must be fostered from a young age (Yusliza et al., 2020).

A cross-sectional survey design and a systematic random sampling strategy were used to gather data using a closed-ended self-administered questionnaire from a target population of 79,575 students from the University of Nairobi in Kenya, who were clustered into six colleges: Agriculture and Veterinary Science, Architecture and Engineering, Humanities and Social Sciences, Health Sciences, Education and External Studies and Biological and Physical Sciences. Fisher's formula ($n = Z^2pq/d^2$) was used to get a sample size of 384, which was proportionately distributed as indicated in Table 1.

Table 1. Target Population and Sample Size.

College	No. of students	Percentage	Sample size
Agriculture & Veterinary Science	13,800	17	65
Architecture & Engineering	3,680	5	19
Humanities and Social sciences	23,016	29	111
Health Sciences	4,159	5	19
Education & External Studies	31,440	40	154
Biological & Physical Sciences	3,480	4	16
Total	**79,575**	**100**	384

Respondents demographics

A total of 384 self-administered questionnaires were distributed to the respondents, but only 335 were returned, indicating an 87% response rate. The study findings established that most respondents were between the ages of 18–23 years with 69.2%, and the oldest respondents were those over 42 years with 0.3%. Results further show that most respondents were men (57.3%), while female respondents were 42.7%. Finally, most respondents came from the College of Education and External Studies with 44.8%, while the least respondents were from the College of Biological and Physical Sciences with 4.8%, as indicated in Table 2.

Instrument measurement

Variables used in this study were assessed with several items' scales adopted from prior studies with few modifications to suit the current context of the study (Wang et al., 2018). Respondents were asked to indicate their level of agreement/disagreement for each of the items on a five-point Likert scale by indicating numbers ranging from (1) "strongly disagree" to (5) "strongly agree." Green buying intentions had seven (7) items that were adopted from the work of Paul et al. (2016), while self-image had seven (7) items that were adopted from Lee (2008). On the other hand, environmental concern had nine (9) items that were adopted from the study of Fraj-Andrés and Martínez-Salinas (2007) and social influence had five (5) items that were adopted from Rehman and Dost (2013). Finally, gender was measured as "0" for females and "1" for males, age was measured in six (6) categories, and colleges was measured as "1 to 7."

Findings

Descriptive statistics

Table 3 shows the summary statistics for the sampled variables, with social influence and environmental concern having the highest mean of, 4.18, 4.10 and SD = .526, .557, respectively. This was followed by self-image (M = 3.98, SD = .579) and green buying intentions (M = 3.89, SD = .517) respectively. The **Table** further indicates reliability test of the instrument. Results show that

Table 2. Demographic Characteristics of the Respondents.

Demographic factor	Number of respondents	% no. of respondents
Gender:		
Female	143	42.7
Male	192	57.3
Total (n)	335	100
Age:		
18–23	232	69.2
24–29	86	25.7
30–35	12	3.6
36–41	3	.9
42–47	1	.3
Above 48	1	.3
Total (n)	335	100
College of study:		
Agriculture & Veterinary Science	47	14.0
Architecture & Engineering	19	5.7
Humanities and social	84	25.0
Health Science	19	5.7
Education & External studies	150	44.8
Biological & Physical	16	4.8
Total (n)	335	100

Cronbach's Alpha values for all variables were all above .6. Finally, findings of correlation analysis show that the association between green buying intention and environmental concern had the strongest relationship with r =.623, p <.01, followed by self-image with r =.591, p <.01, while social influence had the least but significant relationship with green buying intentions with r =.128, p <.05.

Factor analysis

Factor analysis was performed using principal component extraction (PCA) with varimax rotation analysis, and an eigenvalue higher than 1 criterion was used to describe the variables of the study. Additionally, any item that fails to meet the criteria of having a factor loading value of greater than .5 and does not load on only one component was removed from the study. Results indicate a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) of .811 with Bartlett's Test of Sphericity showing a Chi-Square of 2225.518 with a *df* of 378, p = .000 indicating that factor analysis was appropriate (Khare, 2019). Table 4 indicates four components derived from 28 items, accounting for approximately 40% of the total variance. All five items measuring social influence are loaded on component one (1). This variable accounted for 19% of the variance.

Table 3. Descriptive, Reliability and Cronbach's Analysis.

Variable	M	SD	α	Correlation			
Green buying Intent	3.89	.517	.748	1			
Self-Image	3.98	.579	.692	.591**	1		
Environmental Concern	4.10	.557	.676	.623**	.368**	1	
Social Influence	4.18	.526	.801	.128*	.099	.167**	1

Note: * Correlation is significant at 0.05, ** significant at 0.01 level (2-tailed).

Six items measuring green buying intentions loaded on component two (2) as one (1) item was removed as it did not load. The variance explained by this factor was 8.7%. Additionally, five (5) items measuring environmental concern loaded on component three (3), four (4) of its items were removed from the study for not loading. Findings show that 6.2% of the variance was explained by the five items of this variable. Component four (4) was named self-image after four (4) of its were items loaded on it, and three (3) items were omitted from the study as they did not meet the criterion. The items of this variable explain 5.5% of the variance.

Hypotheses testing

Testing for mediation

This study used Hayes (2018) Process Macro vs3.5 (Model 4) in testing the hypotheses. PROCESS is much more user-friendly than any structural equation modeling (SEM) program (Hayes et al., 2017). According to Hayes et al. (2017), SEM is better at taking account of random measurement error when estimating effects involving latent variables. However, this comes at the cost of more effort as well as the programming knowledge needed to compute relevant statistics and inference methods, which PROCESS performs automatically and painlessly (Hayes et al., 2017). To test the mediation hypothesis H1, MacKinnon (2012), four recommendations were followed. According to MacKinnon, for mediation to occur;

(i) a significant relationship **MUST** exist between the independent variable (self-image) and the mediator variable (environmental concern). This refers to path "$\boldsymbol{a_1}$" of Figure 1 of the conceptual model.
(ii) a significant relationship **MUST** exist between the mediator variable (environmental concern) and the dependent variable (green buying intentions) depicted as path $\boldsymbol{b_1}$ of Figure 1 of the conceptual model.
(iii) determining the association between the independent variable (self-image) and the dependent variable in the presence of the mediator variable (environmental concern). This is depicted as path ***C'*** of Figure 1 of the conceptual model. A significant relationship of this test is NOT a prerequisite for mediation to take place. A significant result of this condition reveals either a *complimentary mediation* (Both mediated effect ($a \times b$) and direct effect (C') exist and results have same signs, either positive or negative) or *Competitive mediation* (mediated effect ($\boldsymbol{a} \times \boldsymbol{b}$) and direct effect (***C'***) both exist and signs point in opposite directions e.g one has a positive sign and the other has a negative sign). On the other hand, a non-significant relationship of this condition shows an *Indirect-only mediation* where mediated effect ($\boldsymbol{a} \times \boldsymbol{b}$) exists, but no direct effect (X. Zhao et al., 2010).

Table 4. Factor analysis for the study variables.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.811
Bartlett's Test of Sphericity	Chi-Square	2225.518
	df	378
	Significance	.000

Study variables (n = 335)	Eigen Value	% Var	Total %
1. Social Influence	5.41	19.33	19.33
2. Green Buying intentions	2.45	8.75	28.08
3. Self-image	1.73	6.19	34.27
4. Environmental Concern	1.55	5.55	39.81

Items and their Factor Loadings	1	2	3	4
I intend to buy environmentally friendly products as they are less polluting		.669		
I intend to switch to other brands for ecological reasons		.616		
I plan to buy products that are environmentally friendly		.622		
I am likely to purchase green products over non green products when the product quality is similar		.522		
I will consider buying products with recyclable or biodegradable packaging		.665		
I plan to buy recycled, reusable or refilled products		.670		
I intend to buy green products even if they are more expensive than the non-green products		**RM**		
I learn a lot about green products from my friends	.692			
I learn about environmental issues from my friends	.709			
I discuss with my friends about environmentally friendly products	.734			
I Discuss with my friends about environmental issues	.690			
I always buy environmentally friendly products with my friends	.506			
It frightens me to think that much of the food i eat is contaminated with pesticides			**RM**	
I become angry when i think about harm being done to the environment by pollution			.714	
When i think of how industries are polluting the environment, I get angry and frustrated			.649	
It genuinely infuriates me to think that government does not do more to help control pollution of the environment			**RM**	
I become incensed when i think about the harm being done to plants and animal life by pollution			.515	
I often think about how the environmental quality of Kenya can be improved			**RM**	
I am worried about how the environmental quality of Kenya can be improved			.548	
Kenyan's environment is my major concern			.504	
I am emotionally involved in environmentally protection issues in Kenya			**RM**	
Supporting environmental protection makes me more socially acceptable				**RM**
Supporting environmental protection makes me special				**RM**
I will be perceived by others as outdated if i don't support environmental protection				.699
Using green products is a status symbol				.649
i like to know what green brands and products make good impressions on others				.517
If i want to be like someone, I often try to buy the same green brands that they buy				.660
I often identify with other people by purchasing the same green products & brands				**RM**
I intend to buy environmentally friendly products because they are less polluting		.669		
I intend to switch to other brands for ecological reasons		.616		
I plan to buy products that are environmentally friendly		.622		
I am likely to purchase green products over non green products when the product quality is similar		.522		
I will consider buying products with recyclable or biodegradable packaging		.665		
I plan to buy recycled, reusable or refilled products		.670		

Note: Var = Variance, RM = Items removed from the study

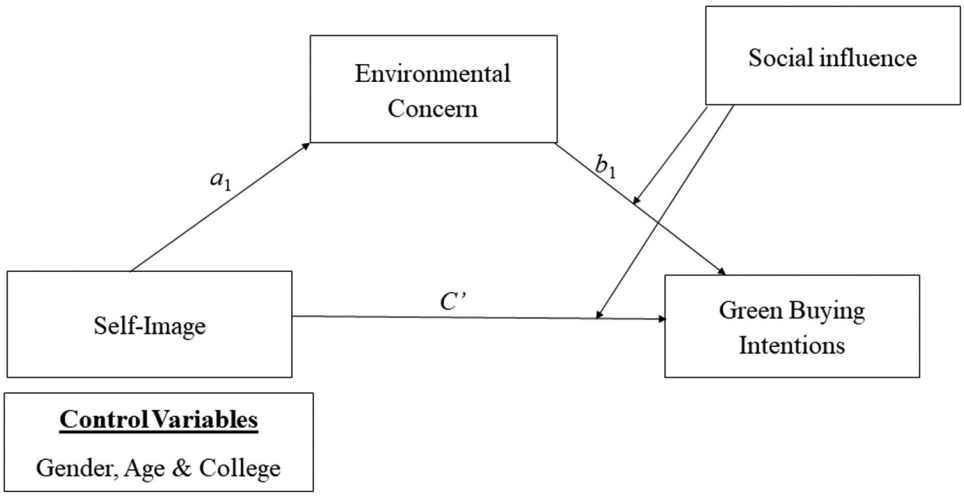

Figure 1. Conceptual Model. Source: Hayes (2018b)

(iv) a significant coefficient for the indirect path **MUST** exist between the independent variable (self-image) and the dependent variable (green buying intentions) via the mediator variable (environmental concern) ($a \times b$). Results of both the confidence intervals (Lower and Upper Limit) must be none zero to determine if this last condition is met. In all the analyses we controlled for gender, age, and type of college.

Findings in Table 5 **Model 1** indicates that gender (β = −.024, p =.021) was found to be significant in this model, while age (β = .054, p =.476) and type of college (β = −.050, p =.134) were found to be insignificant. Additionally, results show that self-image has a significant relationship with environmental concern, as indicated by β = .375, p =.000, and R^2.155, with a significant F = 15.179, p =.000. This implies that the model explains 15.5% of the variance in environmental concern. Based on these results, step one (i) is confirmed by the study.

In the second step, the study examined whether environmental concern (mediator) has a significant relationship with green buying intention (path b_1 of Figure 1). Results in Table 5**, Model 2** show that all the control variables were insignificant. However, environmental concern (mediator) was found to have a positive, significant relationship with green buying intention (dependent variable) with β =.462, p =.000, and R^2.545 which had a significant F = 78.691, p =.000. This model explains 54.5% of the variance in green buying intentions. Step two is also supported.

To determine the results for the third step, "the relationship between self-image and green buying intentions in the presence of environmental concern", the same **Model 2** (indicated by ***C'***) was used. Results reveal that self-image

Table 5. Mediation of Environmental Concern on Self-image and Green Buying Intention.

	Model 1 (EC)		Model 2 (GBI)		Model 3 (Total Effect)	
Predictor	β	*p-v*	β	*p-v*	β	*p-v*
Gender	−.024*	.021	−.089ns	.246	−.199*	.027
Age	.054ns	.476	−.061ns	.267	−.037ns	.574
College	−.050ns	.134	−.023ns	.344	.046ns	.109
Self-image	.375***	.000	C' = .426***	.000	.599***	.000
EnvConcern	-	-	b_1 = .462***	.000	-	-
R^2	.155		.545		.364	
F	15.179***		78.691***		47.308***	
Mediation =	$a_1 \times b_1$ = .375 × .462		=. 173, SE = 040		CI = .102, .259	

Note: * significant at p <.05, *** significant at p <.001, EnvConcer, EC = Environmental Concern, GBI = Green Buying Intention, ns = Not significant

was significantly associated with green buying intention, as shown by β = .426, p =.000. Thus, step three is also confirmed by the study.

Finally, applying X. Zhao et al. (2010) steps discussed earlier on mediation, the study found the mean indirect effect from the bias-corrected percentile bias bootstrap analysis as positive and significant, as shown by $a_1 \times b_1$ = .375 × .462 =. 173, SE = 040, CI = .102, .259. Since the confidence intervals (CI) for the indirect effect do not straddle a zero in between, the findings support the presence of the mediation effect (Memon et al., 2018).

Since the study findings indicate that both mediated effect ($a_1 \times b_1$ =.375 × .462 =. 173) and direct effect (C' = .426) exist and both results have the same positive (+) signs, the study reveals a ***complementary mediation***. This is evident in **Model 3**, Table 5 which shows results of the Total Effect (direct + indirect effect) = .426 + .173 = .599 implying that the two processes jointly contribute to the total effect model, which is a better model with a higher value (β = .599) than when testing the direct effect model alone (β = .462). Results of control variables in this model indicate that gender was found to be significant with β = −.199, p =.027, while age and type of college remained insignificant. In addition, results show that this model explains 36.4% of the variance (R^2.364) with a significant F = 47.308, p =.000. Based on the above findings, hypothesis **H1** is supported by the study.

Testing for moderation and moderated mediation

To test for moderation and moderated mediation, A. F. Hayes (2018b) Process Macro vs3.5 (Model 15) was used. The findings in **Model 1 of** Table 6 in relation to control variables reveal that gender (β = −.239, p = .021) was found to have an influence on environmental concern, while age and type of college were insignificant as shown by p >.05. Additionally, results indicate that self-image significantly influences environmental concern, as indicated by β = .375, p = .000. Results further reveal that this model has R^2.155, and F = 15.179, p =.000, implying that it accounts for 15.5% of the total variance in environmental concern.

Findings in **Model 2** of the same table show the findings of the first and second interactions of social influence on the relationship between self-image, environmental concern, and green buying intentions hypotheses **H2** (path *C'* of Figure 1) and **H3** (path b_1 of Figure 1). The results of the control variables in this model were all insignificant. In addition, both self-image (β = .470, p = .000) and environmental concern (β = .444, p = .000) were found to be significant, while social influence indicated an insignificant effect, β = −.003, p = .931. Most importantly, social influence was found to moderate the link between self-image and green buying intentions (β = .272, p = .000) and the link between environmental concern and green buying intentions (β = −.247, p = .000). This model explains 62.2% of the total variance in green buying intentions, as shown by R^2.622, F = 67.195, p =.000. However, the interaction of social influence on self-image and green buying intentions had a change in R^2.066, with a significant F = 57.031, p =.000 implying that the interaction process accounts for 6.6% of the variance in green buying intentions. The finding of this interaction is further illustrated by Figure 2 which reveals how the moderator enhances green buying intention in young consumers. Results show that green buying intentions increase with an increase in the impact of social influence on self-image and vice-versa. Based on these findings, hypothesis **H2** is supported by the study.

Furthermore, the second moderation effect of social influence on the link between environmental concern and green buying intentions revealed a change in R^2.050, with a significant F = 43.282, p =.000 implying that the interaction process accounts for 5% of the variance in green buying intentions. The conditional results of this interaction are further supported by Figure 3 which shows the critical role that social influence plays in green buying intention. The figure reveals that with low levels of environmental concern, green buying intention is high, with students having higher levels of social

Table 6. Results of the moderating effect of Social influence on Study Variables.

	Model 1 (EnvironConcern)		Model 2 (Green Buying Intention)	
Variable	β	*p-v*	β	*p-v*
Gender	−.239*	.021	−.181ns	.247
Age	.054ns	.476	−.061ns	.232
College	−.050ns	.134	−.011ns	.626
Self-image	.375***	.000	.470***	.000
EnvConcer	-	-	.444***	.000
SocialInflu	-	-	−.003ns	.931
SelfIm× SI	-	-	.272*** (ΔR^2 = .066, F = 57.031***)	.000
EnvCo × SI	-	-	−.247*** (ΔR^2 = .050, F = 43.282***)	.000
R^2	.155		.622	
F	15.179***		67.199***	

Note: * significant at p <.05, *** significant at p <.001, EnvConcer = Environmental Concern, SocialInflu = Social Influence, ns = Not significant
SelfIm × SI = moderation effect of Social Influence on Self-Image and Green Buying Intention
EnvCo × SI = moderation effect of Social Influence on Environmental Concern and Green Buying Intention

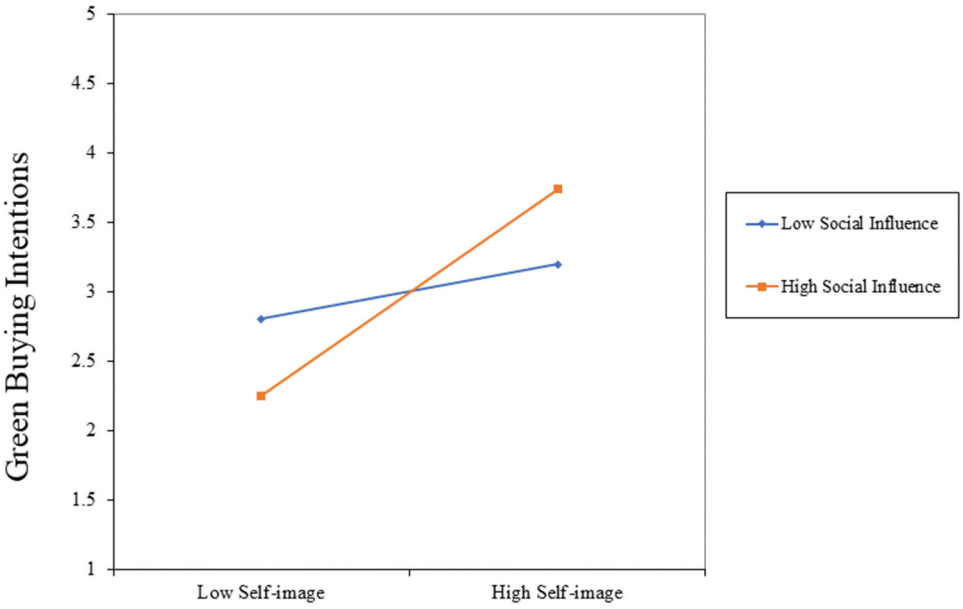

Figure 2. Conditional Effect of Social Influence on Self-Image and Green Buying Intentions.

influence than those with low influence. As environmental concern increases, green buying intentions also increase with both groups, but the increase seems to be higher with those having low levels of social influence due to high levels of environmental concern. Based on the above findings, hypothesis **H3** is also supported by the study.

Finally, hypothesis **H4** proposed that different pathways would exist around self-image, environmental concern, and green buying intention, with varying levels of social influence. Table 7 shows that a conditional indirect effect was observed between self-image and green buying intention at all levels of social influence, but it was much greater for students with lower influence (β = .259, CI =.168, .364) than those with higher influence (β =.074, CI = .016, .154). Results are illustrated in Figure 4. This information is helpful to organizations in investing resources in several right projects that can enhance consumers' intentions toward green products. Based on the findings, hypothesis **H4** is also supported.

Discussion

The main goal of this study was to extend the current literature through the use of a well-developed moderated mediation model of social influence and environmental concern in determining the conditions and mechanisms through which an individual's self-image could enhance green buying intentions among university students. Results of the current study confirm that

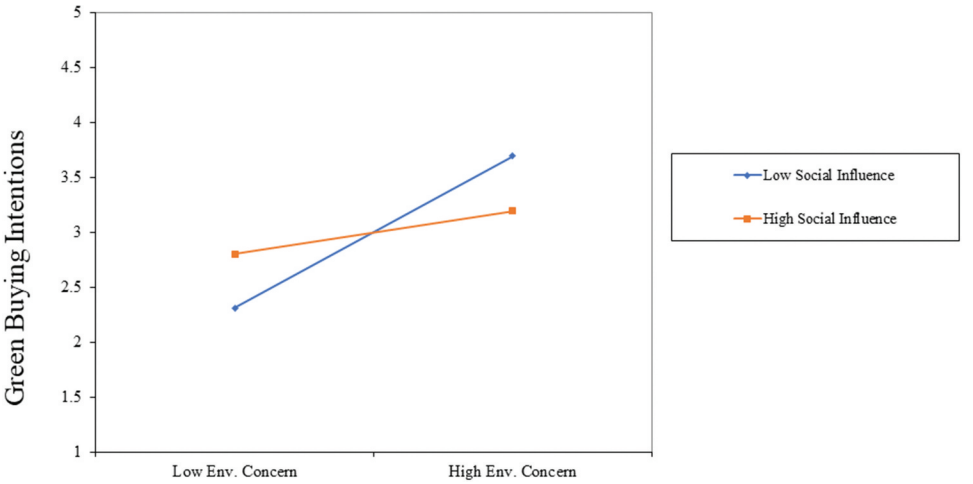

Figure 3. Conditional Effect of Social Influence on Environmental Concern and Green Intentions.

Table 7. Results of the Moderating effect of Social Influence on the Indirect Relationship Between Self-Image and Green Buying Intentions through Environmental Concern.

Social Influence	Effect	SE	BootLLC1	BootULC1
Lower Level (−1)	.259	.051	.168	.364
Mean Level (0)	.166	.038	.101	.247
Higher Level (1)	.074	.035	.016	.154
Moderated Mediation Index	−.092	.022	−.138	−.053

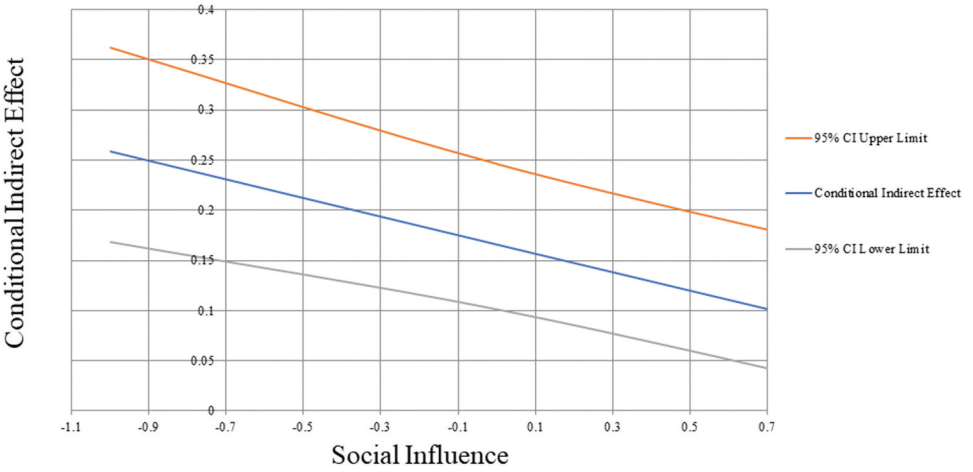

Figure 4. Conditional Indirect Effect of Social Influence on Self-Image and Green Buying Intentions Via Environmental Concern.

environmental concern mediates the relationship between self-image and green buying intentions, and this mediation is further moderated by social influence.

Consistent with existing literature, this study found that self-image positively and significantly influences green buying intentions. Results show that students see themselves as individuals whose actions and behaviors are environmentally friendly (Van der Werff et al., 2014). This supports prior studies (Han & Stoel, 2017; Moon et al., 2021; Naderi & Van Steenburg, 2018; Suki & Suki, 2019), which have indicated that those with a clear environmental self-image will identify themselves more clearly as environmentally conscious citizens and will be more likely to behave in line with that ideology. However, these findings contradict those of Blose et al. (2020) and Irawan and Darmayanti (2012), who found that self-image does not predict environmental sustainability. Institutions of higher learning should come up with eco-sustainable ideas to promote group involvement because this could help individuals feel safe and protect the environment. Furthermore, engagement in environmentally sustainable actions has been related to how people perceive themselves: the more environmentally conscious their behavior, the more they consider themselves eco-friendly or environmentally concerned (Venhoeven et al., 2016).

Findings further indicate that the higher the respondents environmental concern, the more likely they were to buy green products (Teoh & Gaur, 2019). These reflect the desire of students to make a personal commitment to addressing environmental problems. This is in line with prior studies (Aman et al., 2012; Bhatt et al., 2019; Konuk, 2019; B. Sharma et al., 2017) that have indicated that environmental concern plays a vital role in influencing environmental sustainability and its conservation. In addition, and most importantly, the current study has indicated that environmental concern is a strong mechanism through which self-image can enhance green consumption behavior, thus providing new understanding to the literature.

Contributing to the continuous debates in literature, our findings on social influence and green buying intentions indicate that social influence does not influence green consumerism, as shown by $\beta = -.003$, $p > .05$.This supports the findings of Nguyen and Nguyen (2020), who argue that this may be because young consumers are more self-sufficient and their behavior may not be directly influenced by significant others like friends, peers, and family members. The insignificant effect of social influence in the current study is further supported by the work of Paul et al. (2016) and Varshneya et al. (2017). However, this is contrary to the findings of several other previous studies (Khare, 2019; Ojo et al., 2019; Suki & Suki, 2019; White et al., 2019). Hence, institutions should come up with strategies and policies that encourage togetherness (incorporating all stakeholders) while focusing on sustainability, as this helps people discuss and learn a lot about green products and environmental issues from each other (Kashif et al., 2019).

Most importantly, in this study, the findings of the moderation model bring some new insights into literature and theory. Results indicate that the higher the social influence on the two variables and the outcome variable, the stronger

the green buying intentions. Figures 2 and 3 provide a valuable insight as they reveal how the significant others in respondents' lives act as a remedy in a situation of low self-image and environmental concern by changing their attitude and behavior toward green buying intentions. This is done through their recommendations to behave in a similar manner that conforms to the group's norms (Shahriari et al., 2019). The influence is further reflected through the experiences shared by others toward certain products, services, and brands by peers, coworkers, family, and opinion leaders (Clark et al., 2019; Khare, 2019; Viswanathan & Jain, 2013). Consumers always perceive the high social value of products that evolve during their interactions with friends, coworkers (Jain & Schultz, 2019).

Finally, the study findings found that social influence exerts a conditional indirect effect on the link between self-image and green buying intentions via environmental concern in such a manner that it is much stronger at a lower level of the moderator (social influence) than at a higher level (Figure 4). This is vital information to management in grafting strategies, policies, and resource allocation to important areas in the company's operations that can enhance green consumerism and environmental sustainability. These conditional indirect results also contribute to existing knowledge in literature.

Conclusion

This study offers an invaluable and important insight into the actions of young consumers in developing economies in relation to green buying intentions. It aims to expand our understanding of departures from conventional food practices and a new trend in green consumerism. The study concludes that self-image, and environmental concern influence green consumerism and environmental sustainability. Additionally, social influence plays a critical role in enhancing the relationship between self-image, environmental concern, and the green buying intentions of young consumers.

Implications

Implications to theory

Our findings show that self-identity is crucial in the development of consumers' green intentions, which supports prior studies (Confente et al., 2020; Hansmann et al., 2020; Moon et al., 2021). Our results are consistent with the self-congruity theory, which holds that consumers' intentions to favor a particular product increase when they perceive a high degree of congruence between themselves and the product and vice versa (Confente et al., 2020; Klabi & Binzafrah, 2022). Furthermore, environmental concern was also found to have a significant effect on green buying intentions as hypothesized, which supports prior literature (Bhatt et al., 2019; Konuk, 2019; Y. Li et al., 2021; Teoh & Gaur, 2019).

The most significant theoretical implication of the current study's findings is that, contrary to the Theory of Planned Behavior's assertion, social influence does not always influence a behavioral intention. Prior studies (Maulana, 2022; Nguyen & Nguyen, 2020; Paul et al., 2016) argue that this may be based on the assumption that younger consumer generations seem to be more self-sufficient and that their behavior is not directly influenced by other people such as friends, peers, and family members. This is further supported by Varshneya et al. (2017), who suggest that customers may consider buying certain products for personal reasons rather than influence from significant others.

In conclusion, the current study theoretically supports existing literature and theory because the data collected provides a model fit to explain the theorized linkage between self-identity and green purchasing intentions among university students under the regulative mechanisms of environmental concern and social influence. This adds to the body of knowledge on mediation, moderation, and moderated mediation. This insightful perspective will aid in promoting and informing future research on current environmental concerns and social influence as influencers of green purchasing intentions in other contexts.

Implications to practice and policy makers

Findings from this study are useful to policymakers in designing, developing, and implementing effective policies and strategies that can increase environmentally, friendly behavior among young consumers in institutions of higher learning. This is because educated people care more about sustainability than the average citizen does. Furthermore, they have the potential to understand, and recognize environmental settings and to undertake appropriate measures to maintain and preserve them. Education is aimed at developing responsible, capable individuals with knowledge, expertise, and ideas that can contribute to an economically sustainable and better environment (Vicente-Molina et al., 2013).

Governments and businesses can use our findings to develop programs that are geared toward providing the public with knowledge about the environment and also nurturing their concern for preserving it. Additionally, marketers can use buzz marketing to encourage young people to buy green products as they seem to have confidence in the opinion of their friends/peers which can be effectively achieved through social media platforms seen as part of their day to day lives. Therefore, there is an urgent need for policymakers to develop strategies that can expand media reporting of environmental threats/risks, which would raise consumer understanding of the threats and improve their willingness to behave responsibly (Bhatt et al., 2019).

Limitations and suggestions

The sample size used in this study was 384 students who came from one university. This might lead to potential biases in their responses. Therefore,

a much bigger sample and wider sampling frame should be considered in future research. Furthermore, due to the limited geographical scope of this research, a replication of the same should be done in a wider scope to compare results and get more valuable information.

Additionally, the current study only focused on young consumers. Future research should take into account a broader view of consumers rather than just focusing on young consumers. Finally, while we collected data from respondents using a cross-sectional survey design, a longitudinal research design could be used to provide more evidence for the assumptions made in this study.

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ORCID

Gabriel Simiyu http://orcid.org/0000-0002-4956-1840

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