

Article

Promoting Sustainable Consumption: The Roles of Consumers' Domain-Specific Environmental Knowledge and Personality Traits

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Abstract: Environmental sustainability, a pivotal facet of sustainable development, is explicitly emphasized and advocated. The textile and apparel (T&A) industry, which is resource-intensive, faces challenges in transitioning toward an ecologically friendly market. The shift toward sustainability is causing significant changes in consumer lifestyles and cultural practices, resulting in increased uncertainty in pro-environmental behaviors. This study adapts the environmentally responsible behavior (ERB) model to investigate how consumers' subjective and objective domain-specific environmental knowledge (SUEK and OBEEK) and personality traits—including personal environmental responsibility (PER), eco-centric and anthropocentric environmental beliefs (EEBs and AEBs), and internal and external environmental loci of control (IN-ELOC and EX-ELOC)—influence sustainable consumption intention (SCI) for T&A products. The data from 212 completed online survey questionnaires were analyzed using a two-stage partial least squares structural equation modeling (PLS-SEM) approach. The findings reveal that participants' SUEK related to the T&A industry, and their PER and EEBs positively influence their SCI for T&A products. This research contributes to the literature on consumer SCI in the T&A industry and adds value to the existing ERB model, providing insights for brands, retailers, educators, policymakers, and stakeholders striving for a more sustainable industry.

Keywords: sustainable consumption intention; domain-specific environmental knowledge; personality traits; textile and apparel industry; PLS-SEM; environmentally responsible behavior model



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1. Introduction

Sustainable development, initially introduced in 1987 and exemplified by the United Nations' 17 Sustainable Development Goals (SDGs) in 2015 [1], is becoming a societal megatrend. Environmental sustainability, as one of the crucial cores of sustainable development, is directly emphasized in SDG 6 ("Clean Water and Sanitation"), SDG 13 ("Climate Change"), SDG 14 ("Life below Water"), and SDG 15 ("Life on Land") [1], and called for in SDG2 ("Zero Hunger"), SDG 7 ("Affordable and Clean Energy"), and SDG 12 ("Responsible Consumption and Production") [1]. The environmental issues resulting from industrial development are increasingly drawing public attention to the environment and raising concerns about the future of industries [2].

The textile and apparel (T&A) industry holds a significant position in global manufacturing. Based on the 2022 report by the United Nations Alliance for Sustainable Fashion [3], the T&A industry was assessed as worth \$2.4 trillion and supported a workforce of 300 million people. The T&A industry confronts a range of environmental challenges, including four main environmental issues: water scarcity, carbon footprint emission, waste management, and microplastic pollution [4]. The T&A industry is both the second-largest consumer of freshwater and the primary contributor to freshwater pollution [5]. On an annual basis, it accounts for approximately 4 percent of the world's freshwater usage [5], is responsible for around 20 percent of global water pollution [6], generates an estimated 10 percent of global greenhouse gas (GHG) emissions [7], results in the loss of around

92 million tons of materials [8], and contributes to 9 percent of microplastic pollution in the world's oceans [3]. These negative environmental outcomes drive the critical needs for the T&A industry to seek an environmentally sustainable development path.

Su et al. [9] suggested that the T&A industry is heavily consumer-driven. It is traditionally more likely to be dictated by consumers' wants and needs. Other industries have also become more consumer-driven. However, this transformation inevitably leads to major changes in consumers' lives, affecting their lifestyles and cultural practices [10]. For example, approximately 79 percent of consumers are altering their purchase preferences based on sustainability [10]. Consumer behaviors and actions within the pro-environmental context have become increasingly uncertain [11].

Although research on environmentally sustainable development within the T&A industry has increased markedly in recent years, the discussion on consumers has remained in its early stages [12]. Previous studies on consumer environmental behaviors in the T&A industry have focused primarily on psychological factors, such as attitudes, subjective norms, and beliefs [13]. However, the influence of environmental knowledge [14] and other psychological factors, including general environmental beliefs (GEBs) [15], a sense of personal environmental responsibility (PER) [16,17], and an environmental locus of control (ELOC) [18,19], on individual environmental behaviors has been increasingly substantiated in many industry sectors, particularly within the tourism and education domains [20]. The extent to which these findings are applicable and accurate within the context of the T&A industry remains uncertain. In addition, Granco et al. [21] reported that the effect (promotion or inhibition) of GEBs is influenced by their specific content (ecologism or anthropologism). Similarly, Yang and Weber [22] argued that the predictive power of ELOC also depends on specific contexts and behaviors. In past studies, the predictive power of environmental knowledge, especially domain-specific environmental knowledge, has often been underestimated or ignored in environmental behavior studies [14]. Substituting general environmental knowledge for specialized environmental knowledge to explain corresponding domain-specific performance is highly likely to lead to inaccuracies [14]. Additionally, Dunning and Helzer [23] proposed that subjective knowledge and objective knowledge may impact behavior in distinct ways because of differences in underlying psychological processes.

Thus, the chief objective of this study is to address the limited evidence in the literature mentioned above and to enhance the understanding of consumers' sustainable consumption intention (SCI) in the T&A industry by examining the relationships between domain-specific environmental knowledge and personality traits and SCI. The more specific objectives of this study are as follows:

- to investigate the influence of subjective and objective environmental knowledge (SUEK and OBEK) of the T&A industry on SCI for T&A products;
- to examine the influence of personality traits, including PER, eco-centric and anthropocentric environmental beliefs (EEBs and AEBs), and internal and external ELOC (IN-ELOC and EX-ELOC), on SCI for T&A products.

2. Literature Review and Hypothesis Development

2.1. The Environmentally Responsible Behavior (ERB) Model

Environmentally responsible behavior (ERB) is a concept in environmental psychology and is defined as any action taken by individuals or groups to address environmental issues and protect the environment [24]. Hines et al. [20] developed the ERB model through a comprehensive meta-analysis of 128 pro-environmental behavioral research studies. This model identifies the cognitive, affective, and social situational variables associated with ERB and describes their interrelationships in affecting and predicting ERB, as represented in Figure 1.

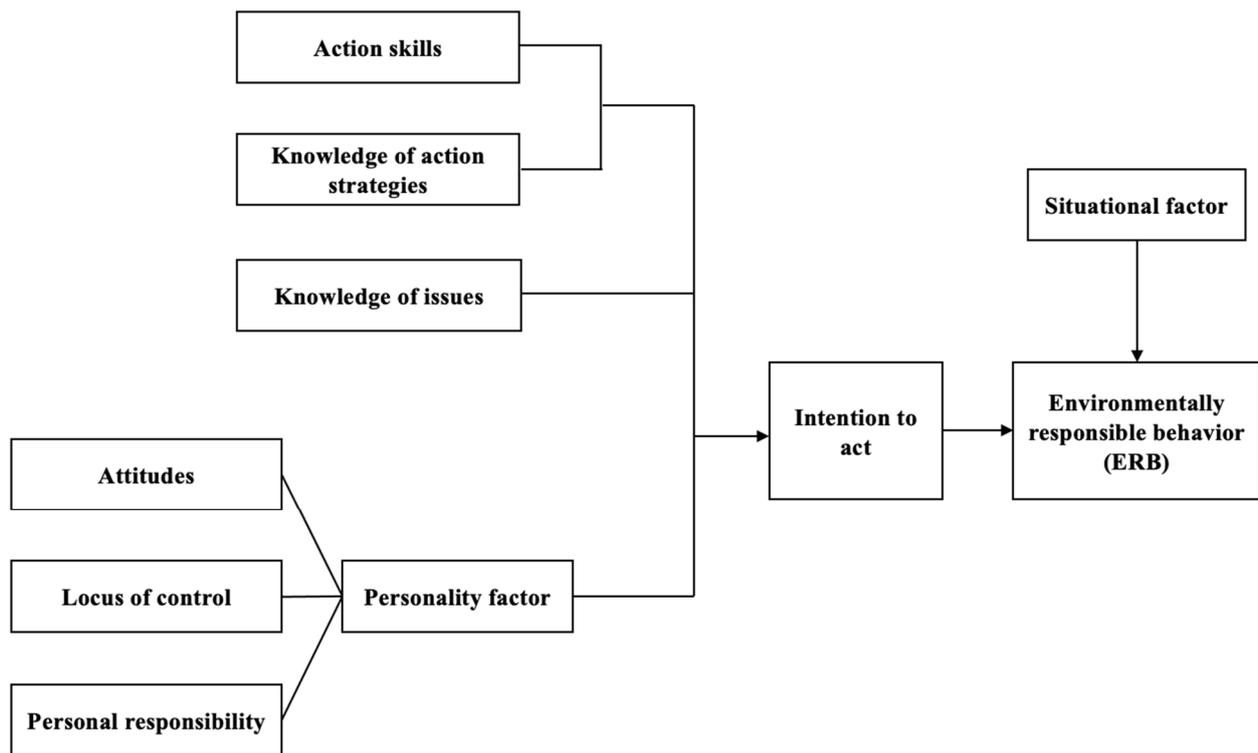


Figure 1. The environmentally responsible behavior model. Source: Hines et al. [20].

The ERB model suggests that ERB is not only directly influenced by the intention to act but also affected by various situational factors, such as economic constraints, social pressures, and the availability of different choices. Skills including action skills and knowledge of action strategies, knowledge of issues, and individual personality traits collectively influence the formation of one's "intention to act". Skills and knowledge of issues, categorized as cognitive variables, describe an individual's capacity to address environmental issues and their level of awareness about these concerns, respectively [20]. Identifying issues is crucial before acting. Knowledge indirectly influences ERB through intention. The more an individual knows about environmental issues and how to address them, the more likely they are to engage in ERB [25]. On the other hand, affective variables, including personality traits such as attitudes, locus of control, and personal responsibility, reflect an individual's characteristic patterns of thoughts, feelings, and actions [20]. Attitude is regarded as one of the most powerful contributors to ERB, with a more positive environmental attitude showing a stronger correlation with ERB [26]. Personal responsibility, defined as an individual's sense of duty toward the environment, increases the likelihood of engaging in ERB [20]. Locus of control reflects an individual's belief in their ability to affect change through their own actions [20]. The concept comprises both internal and external loci of control, and these loci typically exert distinct impacts on ERB [20]. Additionally, these personality traits, along with the intention to take action, fall under the category of affective variables [27].

The ERB model has found widespread application in consumer ERB prediction research, particularly in domains such as tourism and education [25,28,29]. The understanding and applications of the ERB model continue to evolve and expand. Abdullah et al. [30] applied the ERB model augmented with consumption value theory and destination image and found empirical evidence that environmental knowledge and destination image significantly impact tourists' intention to engage in ERB. Researchers have incorporated additional factors, such as environmental sensitivity [28], environmental concern [26], personal values [31], and general beliefs [15], to extend and enrich the existing ERB model.

2.2. Sustainable Consumption of T&A Products

Sustainable consumption and disposal practices for T&A products align with the objectives of SDG 12 [1], which aims to promote responsible consumption and production by conserving resources, reducing waste, and fostering eco-friendly product lifecycles.

Sustainable consumption does not mean that people consume less but rather that they consume better [32]. To achieve sustainable consumption, different methods have been suggested, including business model-based approaches [33], production-based approaches [34], marketing and communication-based approaches [35], and consumption pattern-based approaches [36]. La Rosa and Johnson Jorgensen [37] suggested that, compared to technology-based approaches, methods based on consumption patterns, consumption levels, and market size can better promote strong sustainable consumption.

In the context of the T&A industry, consumers' sustainable consumption behaviors refer to an individual's behavioral consideration of minimizing negative effects on the environment when purchasing, using, and disposing of T&A products that improve quality of life [11]. Youn and Hye [38] observed a growing consumer concern about the fashion industry's negative environmental impact caused by high fashion consumption, with frequent mentions of keywords such as "eco-friendly", "ethical", and "recycle". Consumers are beginning to make sustainable choices [39]. Young consumers, particularly Millennials and Generation Z consumers, have strong behavioral intentions to participate in the sustainable consumption of T&A products [40]. However, consumers have not yet fully embraced various categories of sustainable goods and practices [41] and often lack relevant skills (such as repairing) and necessary knowledge (such as recycling methods) on how to use and dispose of their apparel in a sustainable way [42]. In addition, the majority of research on consumer behavior in the T&A industry tends to focus on sustainable purchasing, with limited attention given to consumers' sustainable practices during product use and disposal [11].

2.3. Domain-Specific Environmental Knowledge and the SCI

In consumer behavior research, knowledge serves as a pivotal factor influencing decision-making processes and shaping the way consumers assess products and services [43]. Li and Leonas [4] defined domain-specific environmental knowledge as specific information related to environmental sustainability in a given context.

Previous studies have often focused on general environmental knowledge, which encompasses broad environmental information related to both people and nature. However, it is challenging to accurately assess the structure and predictive power of environmental knowledge without a precise definition and scope [14]. Polonsky et al. [44] argued that both general and specific environmental knowledge can lead to various types of behaviors. For instance, Barber et al. [45] noted that consumers' purchases of eco-friendly products are better explained by specific product ecological knowledge than by general environmental knowledge.

Domain-specific environmental knowledge can be categorized into two types: subjective knowledge, which reflects individuals' perception of their environmental awareness, and objective knowledge, which pertains to actual factual knowledge [46]. Various studies have shown differences in how subjective and objective knowledge influence decision-making due to distinct psychological processes [14,18]. Kim et al. [46] examined the effects of subjective and objective domain-specific environmental knowledge on pro-environmental behaviors among tourists in Jeju Island, Korea. The results revealed a significant positive relationship between subjective and objective environmental knowledge and pro-environmental behavior. Notably, the influence of subjective environmental knowledge on environmental behavior was found to be stronger than that of objective knowledge. Hence, the following hypotheses were developed in this study regarding the influence of SUEK and OBEK:

H1a. *SUEK of the T&A industry will positively influence SCI for T&A products.*

H1b. *OBEK of the T&A industry will positively influence SCI for T&A products.*

2.4. Personality Traits

2.4.1. PER and SCI

Environmental responsibility is regarded as a fundamental and vital psychological factor when individuals engage in pro-environmental activities [47,48]. It is often categorized as individual, business, or government. Aldabas et al. [49] found that, compared to the government, individual environmental responsibility is a crucial factor in achieving genuine changes toward eco-friendly consumption. PER refers to an individual's sense of obligation to enhance the environment and engage in pro-environmental actions [16].

Empirical studies have consistently shown that PER motivates individuals' pro-environmental behavior [16,50]. For example, Bouman et al.'s [51] discovered that PER significantly and positively influenced various actions related to climate change mitigation. Additionally, researchers have found that higher levels of PER predict a greater inclination toward green consumption, including a willingness to pay more for environmentally friendly products [16]. Similarly, Patwary et al. [17] observed a significant and positive impact of consumers' PER on their intention to visit green hotels. Based on the above literature, the following hypothesis can be developed:

H2. *PER will positively influence SCI for T&A products.*

2.4.2. GEBs and SCI

Environmental beliefs are classified as the cognitive component of attitudes [52]. They are recognized as critical factors that guide and impact how people judge and solve the environmental issues [53]. Li et al. [15] contend that environmental beliefs positively shape pro-environmental intentions. Additionally, Pickett-Baker and Ozaki [54] argued that environmental beliefs significantly and positively influence intentions related to environmentally oriented purchases.

Thompson and Barton [55] introduced two fundamental motives—eco-centrism and anthropocentrism—to guide the relationship between people and the environment, these two motives have been widely accepted and studied [56–58]. EEBs value nature intrinsically, emphasizing environmentalism, while AEBs prioritize the material benefits that nature provides to humans, focusing on materialism [53]. Both eco-centric and anthropocentric individuals exhibit positive attitudes toward the environment and its issues [59]. Eco-centric individuals value nature for its inherent worth, whereas anthropocentric individuals focus on protecting the environment to enhance or maintain quality of life for humans [55]. In comparison to anthropocentric individuals, those with eco-centric environmental beliefs demonstrate a significantly stronger inclination toward environmental protection [56]. In light of these arguments, we propose the following:

H3a. *EEB will positively influence SCI for T&A products.*

H3b. *AEB will positively influence SCI for T&A products.*

2.4.3. ELOC and SCI

Locus of control, originally developed and defined by Rotter [60], pertains to an individual's perception of whether they have control over the outcome of events. Since the 1970s, the concept of locus of control has been applied in the context of the environment [61]. Cleveland et al. [62] conceptualized environmental locus of control (ELCO) as the belief that environmental outcomes are caused by oneself (internal) or others (external). ELCO is defined as the most enduring and predictive predictor of pro-environmental actions [18,19].

However, when general measures of ELOC are applied to specific contexts and behaviors, their predictive power is often limited [22]. ELOC can be further divided into two dimensions: IN-ELOC (comprising green consumers, activists, advocates, and recy-

clers) [63] and EX-ELOC (encompassing government, corporations, influential entities, and natural Earth cycles) [64].

Consumers often have both internal and external dispositions when dealing with environmental issues [62]. As anticipated, the significant positive effects of IN-ELOC on pro-environmental behavioral intentions are supported by most previous studies [22,63,65,66]. The effects of EX-ELOC are a subject of debate [22]. For example, Fielding and Head [67] observed a negative relationship between EX-ELOC and pro-environmental intentions due to feelings of hopelessness and helplessness [61]. However, Kalamas et al. [64] rejected this negative impact of EX-ELOC and proposed an alternative perspective. They noted that people with a high assessment of government/corporation power are also more likely to act in an environmentally friendly manner even if they are in highly centralized countries [64]. This positive outcome can be attributed to individuals with EX-ELOC viewing government and corporate efforts as supplementary support, which increases their willingness to share environmental responsibility with more influential parties [63]. Furthermore, individuals with EX-ELOC may perceive that their confidence and positive feelings about their own behaviors are enhanced when complemented by the effort of more influential parties [68]. Furthermore, the following hypotheses are developed regarding the relationships between IN-ELOC and EX-ELOC and SCI:

H4a. *IN-ELOC will positively influence SCI for T&A products.*

H4b. *EX-ELOC will positively influence SCI for T&A products.*

3. Methodology

3.1. Sampling and Data Collection

This research adopted a survey approach to achieve the research objectives. The target respondents were college students aged 18 years or older at a large southeastern university. We chose this sampling frame because it represents the future-dominant buying behavior segment, which is likely exposed to university sustainability initiatives, and is more homogeneous than nonstudents in terms of lifestyles and life stages. Homogeneous samples reduce measurement errors in behavioral research linked to subject heterogeneity (e.g., age, education, and income) [69]. We used convenience sampling and distributed the survey through students' university email addresses. The data were collected from 2 January 2023 to 2 February 2023, resulting in a total of 212 usable responses for further analysis. Tables 1 and 2 detail the demographic characteristics of the respondents.

Table 1. Sample characteristics.

Demographic Variable		Frequency	%
Gender	Female	123	58.02
	Male	83	39.15
	Other	6	2.83
Age	18	14	6.60
	19	27	12.74
	20	29	13.68
	21	17	8.02
	22	19	8.96
	23	15	7.08
	24	17	8.02
	25	16	7.55
	Over 25	58	27.36

Table 1. Cont.

Demographic Variable		Frequency	%
College	College of Agriculture and Life Sciences	16	7.55
	College of Design	5	2.36
	College of Education	12	5.66
	College of Engineering	56	26.42
	College of Humanities and Social Sciences	22	10.38
	College of Natural Resources	6	2.83
	College of Management	12	5.66
	College of Sciences	22	10.38
	College of Textiles	43	20.28
	College of Veterinary Medicine	2	0.94
Other	16	7.55	
Ethnicity	American Indian or Alaska Native	0	0.00
	Asian	80	37.74
	Black or African American	4	1.89
	Native Hawaiian or Other Pacific Islander	0	0.00
	White	117	55.19
	Other	11	5.19
Area of Residence	Urban	87	41.04
	Semi-urban	104	49.06
	Rural	21	9.91

Table 2. Sample characteristics—age distribution.

	Mean	Min	Max	Standard Deviation
Age	23.50	18	47	4.76

In addition to demographic information, respondents were asked to specify important attributes for purchasing T&A products. Figure 2 displays the respondents' choices for the attributes they considered most important.

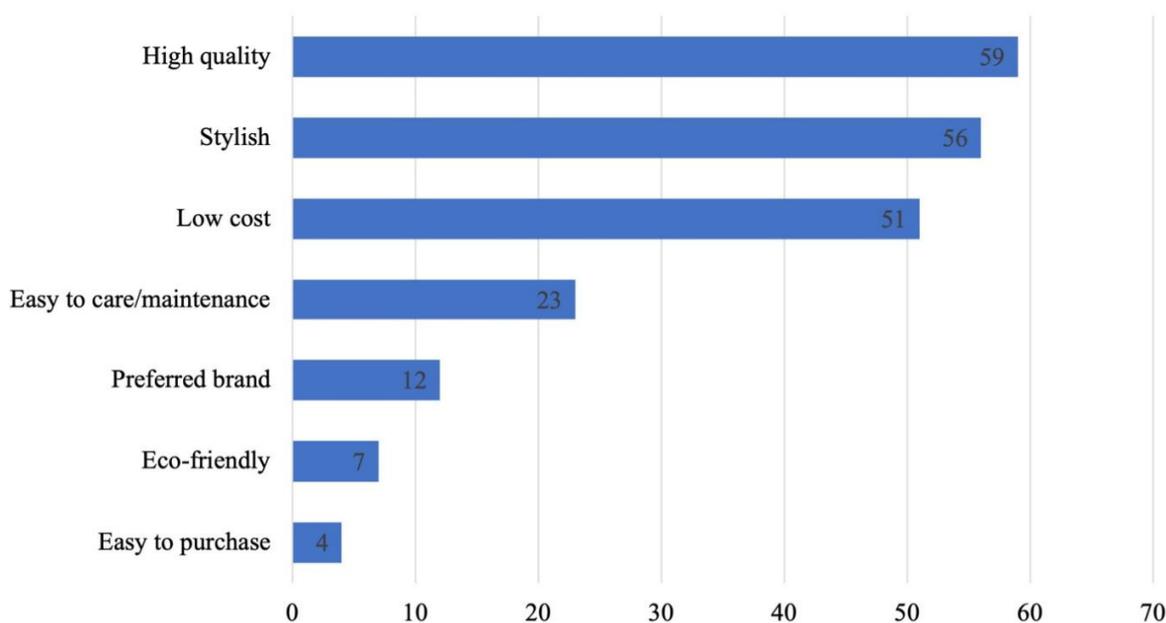


Figure 2. Respondents' purchasing criteria for textile and apparel products.

3.2. Measures of Constructs

The survey questionnaire was divided into five sections: respondents' purchasing criteria, domain-specific environmental knowledge, personality traits, SCI, and background information. SUEK and OBEK were measured using a three-item scale and fourteen-item scale developed by Li and Leonas [4], respectively. PER was assessed using a five-item scale developed by Manzo and Weinstein [70]. EEBs were evaluated using the New Ecological Paradigm (NEP) scale developed by Dunlap et al. [71]. AEBs were measured using the Human Exemptionalism Paradigm (HEP) scale developed by Dunlap et al. [71]. The IN-ELOC and EX-ELOC were assessed using a four-item scale adopted by Cleveland et al. [63] and a four-item scale adopted by Kalamas et al. [64], respectively. Additionally, a nine-item scale was adapted from Soyer and Dittrich [11] to measure SCI. All items are measured using a seven-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree).

3.3. Data Analysis

Figure 3 depicts the relationships as proposed in the hypotheses. A two-stage Partial Least Squares Structural Equation Modeling (PLS-SEM) approach with Smart PLS 3 was used to analyze the measurement model and the structural relationships among the constructs [72]. PLS-SEM was chosen because this approach "enables researchers to estimate complex models with many constructs, indicator variables and structural paths without imposing distributional assumptions on the data" [72] (p. 3). In addition, the PLS-SEM approach is preferred when research is exploratory in situations where the central aim extends existing theory into new contexts [72]. Although the conceptual model includes several well-established constructs with existing measurements, such as responsibility and locus of control, it is worth noting that both forms of environmental knowledge and both motives of GEBs lack well-established measurements within the literature. Crucially, the broader concept of sustainable consumption is a continually evolving phenomenon that remains poorly comprehended by both consumers and other involved parties. Given the research's highly context-specific nature and the ongoing development of measurement techniques, the utilization of the PLS-SEM approach is warranted to examine the central hypotheses.

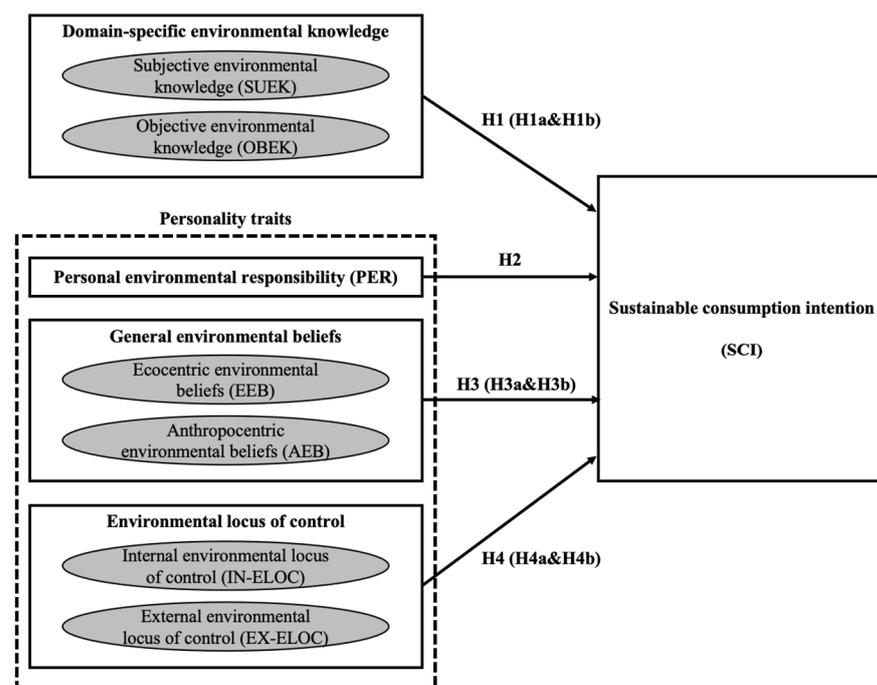


Figure 3. Proposed research model.

4. Results and Discussion

4.1. Measurement Model

Based on the guidelines of Hair et al. [73], all constructs were assessed for structural reliability, convergent validity, and discriminant validity. The full results of structure reliability and convergent validity are presented in Table 3. Measurement items with loadings <0.708 were removed from the model. The results of the reliability and validity analyses revealed that all constructs except AEBs had acceptable composite reliability (C.R.) values (>0.700) and Cronbach's alpha (α) values (>0.700). The measure for AEBs, which is a relatively new concept that lacks documented measurement in past research, was removed from the analysis based on the results of the reliability test (Cronbach's $\alpha_{\text{AEB}} = 0.522 < 0.700$, $\text{C.R.}_{\text{AEB}} = 0.530 < 0.700$). The final model suggested good construct reliability. Convergent validity was achieved when the average variance extracted (AVE) value of all remaining constructs exceeded the minimum criterion (>0.50).

Table 3. Reliability and convergent validity of the constructs.

Construct	Item	Factor Loading λ	Cronbach's α	C.R.	AVE
SUEK	SUEK1	0.912	0.834	0.900	0.751
	SUEK2	0.854			
	SUEK3	0.831			
OBEK	OBEK4	0.836	0.823	0.892	0.734
	OBEK6	0.831			
	OBEK7	0.902			
PER	PER1	0.842	0.723	0.842	0.640
	PER2	0.800			
	PER3	0.756			
EEB	EEB3	0.718	0.797	0.881	0.714
	EEB4	0.901			
	EEB5	0.902			
IN-ELOC	IN-ELOC1	0.814	0.740	0.845	0.645
	IN-ELOC2	0.779			
	IN-ELOC3	0.816			
EX-ELOC	EX-ELOC1	0.908	0.794	0.907	0.829
	EX-ELOC2	0.913			
SCI	SCI4	0.752	0.745	0.846	0.648
	SCI5	0.854			
	SCI6	0.805			

The Fornell–Larcker criterion [74] was used to evaluate the discriminant validity, which is presented in Table 4. The bold values in Table 4 demonstrate that the observed square roots of the AVE for all constructs are greater than the squared correlations (R^2), implying acceptable discriminant validity. Moreover, the results of the HTMT ratio correlation analysis showed that all HTMT values exceeded the threshold (observed values, <0.85), which further supports discriminant validity (Table 5) [75]. Furthermore, VIF metrics did not indicate evidence of collinearity in the measurement model (Table 6) [72].

Table 4. Discriminant validity (Fornell–Larcker criterion).

	SUEK	OBEK	PER	EEB	IN-ELOC	EX-ELOC	SCI
SUEK	0.867						
OBEK	0.316	0.857					
PER	0.328	0.269	0.800				
EEB	0.208	0.381	0.339	0.845			
IN-ELOC	0.267	0.238	0.575	0.342	0.803		
EX-ELOC	0.201	0.238	0.249	0.619	0.254	0.911	
SCI	0.363	0.233	0.429	0.425	0.352	0.354	0.805

Note: Values in bold are the square roots of the AVEs. The squared correlations (R^2) for the constructs appear on the off-diagonal.

Table 5. Discriminant validity (HTMT ratio).

	SUEK	OBEK	PER	EEB	IN-ELOC	EX-ELOC	SCI
SUEK							
OBEK	0.434						
PER	0.420	0.355					
EEB	0.248	0.457	0.441				
IN-ELOC	0.305	0.292	0.803	0.469			
EX-ELOC	0.244	0.281	0.313	0.767	0.337		
SCI	0.459	0.284	0.574	0.542	0.448	0.455	

Table 6. Collinearity diagnostics of the measurement model.

Constructs	Items	VIF
SUEK	SUEK1	2.629
	SUEK2	1.927
	SUEK3	1.853
OBEK	OBEK4	2.234
	OBEK6	1.532
	OBEK7	2.343
PER	PER1	1.992
	PER2	1.950
	PER3	1.172
EEB	EEB3	1.360
	EEB4	2.428
	EEB5	2.311
IN-ELOC	IN-ELOC1	1.850
	IN-ELOC2	1.890
	IN-ELOC3	1.234
EX-ELOC	EX-ELOC1	1.768
	EX-ELOC2	1.768
SCI	SCI4	1.370
	SCI5	1.541
	SCI6	1.443

4.2. Structural Model

The results of the final structural model assessment support a reasonable model structure. The explanatory power and predictive relevance of the constructs are presented in Table 7. The structural model had an R-squared value of 0.324, suggesting that the model collectively accounts for approximately 32.4% of the variance in respondents' SCI. The associated Q-squared value of 0.245 supported the underlying assumption of this research

that the endogenous construct (i.e., SCI) indicated predictive relevance [73]. VIF metrics did not indicate evidence of collinearity in the structural model (Table 8) [72].

Table 7. Explanatory power and predictive relevance of constructs.

Predictors	Outcome	R ²	Q ²
SUEK OBEK PER EEB IN-ELOC EX-ELOC	SCI	0.324	0.245

Table 8. Collinearity diagnostics of the structural model.

Constructs	VIF
SUEK → SCI	1.248
OBEK → SCI	1.307
PER → SCI	1.620
EEB → SCI	1.886
IN-ELOC → SCI	1.565
EX-ELOC → SCI	1.640

A summarized overview of the PLS-SEM results of the final structural model is displayed in Figure 4 and Table 9. Three out of the six hypotheses were supported based on the PLS-SEM results.

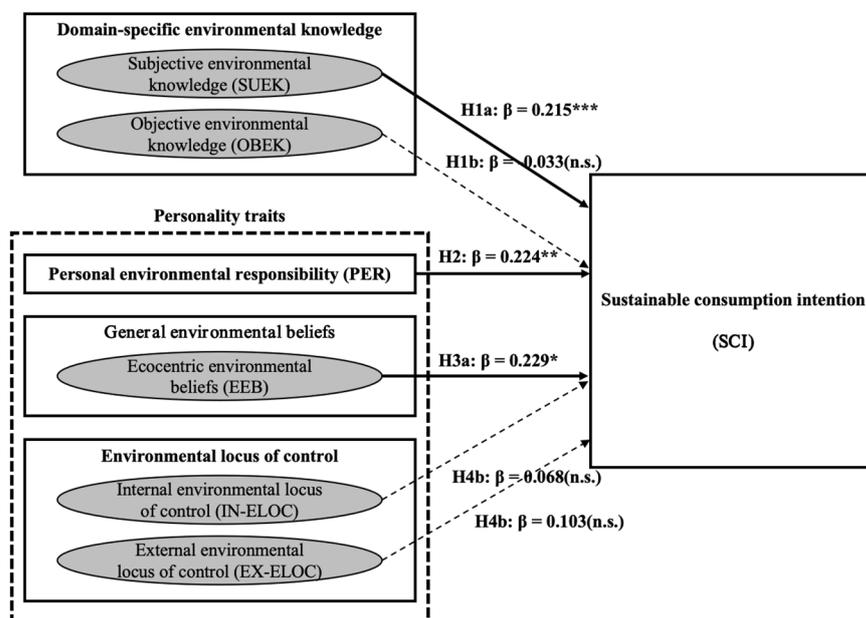


Figure 4. Findings of the final structural model. Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. n.s. not significant.

Table 9. Path coefficients between latent variables.

Path	Standardized Estimates (β)	T Statistics	<i>p</i> Value	Decision
SUEK \rightarrow SCI (H1a)	0.215 ***	3.609	0.000	Supported
OBEK \rightarrow SCI (H1b)	−0.033	0.463	0.644	Not Supported
PER \rightarrow SCI (H2)	0.224 **	3.282	0.001	Supported
EEB \rightarrow SCI (H3a)	0.229 *	2.482	0.013	Supported
IN-ELOC \rightarrow SCI (H4a)	0.068	0.885	0.376	Not Supported
EX-ELOC \rightarrow SCI (H4b)	0.103	1.263	0.207	Not Supported

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

SUEK ($\beta = 0.215$; $t = 3.609$; $p = 0.000 < 0.001$) significantly and positively influenced SCI, while OBEK ($\beta = -0.033$; $t = 0.463$; $p = 0.644 > 0.05$) showed no significant impact on SCI. Consumers in the T&A industry who are confident in their environmental knowledge may exhibit stronger responsible behaviors, regardless of the accuracy of their knowledge. These findings align with those of Han [76], who suggested that subjective knowledge drives pro-environmental behavior toward organic apparel, while objective knowledge has no influence. The complexity of knowledge poses significant challenges in behavior prediction [4]. Merely possessing knowledge of environmental issues and their consequences may not be sufficient to motivate consumers to engage in relevant environmental protection intentions or even reduce their willingness due to the cognition–ability gap. Consumers demonstrate willingness to solve environmental problems when they perceive themselves as having the ability to address and resolve these issues.

PER ($\beta = 0.224$; $t = 3.282$; $p = 0.001 < 0.01$) demonstrated a positive and statistically significant correlation with SCI. In other words, individuals with a stronger sense of personal responsibility for environmental protection are more likely to express intentions to participate in the sustainable consumption of T&A products. Lee and Ju's [16] study showed similar results regarding the link between PER and behavioral intentions. Sustainable consumption in the T&A industry can be viewed as a type of voluntary altruism, emphasizing the well-being of others [77]. Therefore, taking pro-environmental action from this perspective aligns with moral duty. Individuals should think about their environmental impact and meet their needs through less environmentally harmful means.

Additionally, EEBs ($\beta = 0.229$; $t = 2.482$; $p = 0.013 < 0.05$) exhibited a positive and significant effect on SCI. This relationship suggested that consumers who genuinely consider nature concerns over material interests and focused on enhancing human life quality were more likely to have pro-environmental intentions, aligning with previous research [54,56]. Consumers holding eco-centric environmental beliefs acknowledge the adverse effects of human activity on the environment, endorse natural laws, stress resource conservation, and prioritize safeguarding environmental balance for societal well-being.

However, there was a non-significant relationship between IN-ELOC ($\beta = 0.068$; $t = 0.885$; $p = 0.376 > 0.05$) and SCI. Similarly, EX-ELOC ($\beta = 0.103$; $t = 0.207$; $p = 0.027 > 0.05$) also had no significant influence on SCI. This situation may be associated with the fact that the influence of IN-ELOC and EX-ELOC might be masked by the stronger influences of other variables when considering all latent variables together in the PLS-SEM analysis. Moreover, the relationship between locus of control and behaviors might deviate from theoretical expectations due to the controversial nature of the construct [78]. The feelings of hopelessness and helplessness induced by EX-ELOC could lead to significant uncertainty about eventual environmental behavioral intentions.

5. Conclusions, Implications, Limitations, and Future Research

Based on the ERB model theory of Hines et al. [20], this research explores the impact of consumers' environmental knowledge in both forms within the T&A industry and three relevant personality traits, namely, PER, GEBs (EEBs and AEBs), and ELOC (IN-ELOC and EX-ELOC), on their SCI for T&A products. The information was processed using PLS-SEM. The research showed that individuals with a higher level of confidence in their knowledge

of environmental aspects in the T&A industry are more inclined to engage in sustainable consumption within the T&A context. Additionally, those who hold a profound sense of personal responsibility toward environmental protection demonstrate a stronger intention to embrace the sustainable consumption of T&A products. Furthermore, consumers with eco-centric values or beliefs tend to exhibit a heightened inclination toward sustainable consumption of T&A products.

The findings of this research offer valuable implications for both academic researchers and stakeholders in the public sector. From an academic perspective, this study enhances the understanding of consumers' SCI in the T&A industry and addresses identified research gaps. First, the research bridges sustainability and consumer behavior by applying the consumer behavior model (ERB model) to predict consumers' SCI. This approach fosters interdisciplinary development in consumer behavior theories and explores sustainable practices in the T&A industry within the framework of sustainable development. The findings also underscore the importance of considering knowledge as a multidimensional construct [76], with SUEK and OBEK having distinct impacts on consumers' SCI. These findings provide additional evidence that measuring consumer knowledge, particularly from an objective standpoint, remains challenging in the absence of accepted norms for environmental behaviors. Subjective environmental knowledge acts as a proxy in the context of T&A consumption until common acceptance of sustainability practices is established. Moreover, this research enhances the ERB model by extending it to the T&A industry context, introducing more specific knowledge elements (subjective and objective environmental knowledge of the T&A industry) and a new personality trait element (general environmental beliefs).

From a practical perspective, these findings suggest that T&A companies should streamline their environmental messaging, actively promote pro-environmental initiatives, and boost consumer engagement in their marketing efforts to meet the needs of environmentally conscious consumers. In consumer sustainable development education, educators should incorporate diverse categories of knowledge and relevant skills, emphasizing the significance of approaching problem-solving from multiple perspectives. Additionally, the findings suggest that policymakers and non-government organizations should prioritize the development of comprehensive environmental standards and regulations. Moreover, public service initiatives should be designed to address individuals' passive feelings during implementation and stimulate pro-environmental actions.

Like most of the empirical research, this study has several limitations. First, as some measurements used in this research lack robust literature-based validation and modification records, several items and one construct (AEBs) were removed to enhance model fit. This raises validity and reliability concerns regarding the measurement of these constructs. Future research should focus on developing and validating scales for measuring cognitive (SUEK and OBEK) and affective (PER, GEB, ELOC, and SCI) constructs in the T&A context. Second, the topic of environmental sustainability within the T&A industry context is dynamic, and this research has focused only on environmental issue knowledge, overlooking practical knowledge for addressing these issues. Considering topic trends, more representative measurement items should be included in future studies. Third, the scope of this study focused on the environmental dimension. According to the SDGs, T&A products are associated with two key sustainable practices: environmental sustainability and social sustainability [79]. Furthermore, due to limited time and resources, the data were restricted to college students from one large southeastern university, limiting the applicability of the findings to the broader population. In addition, future research may explore the possibility of conducting a multi-group analysis based on demographic variables for additional insights. Finally, the data collection questionnaire was defined based on the constructs for this study. Other variables should be considered in future studies according to the nature of the research and the literature review. Future research should investigate the intention–behavior gap, explore the link between SCI and actual behaviors,

and consider situational factors as potential moderators to provide both practical and theoretical insights.

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Informed Consent Statement: The requirement for participants to provide signed consent was waived given the minimal risks associated with the current study. Instead, potential participants were presented with an informed consent page on the study website. This page detailed the study's purpose, procedures, potential risks, and benefits and emphasized the voluntary nature of participation.

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