Article

"Why Should I Buy Sustainable Apparel?" Impact of User-Centric Advertisements on Consumers' Affective Responses and Sustainable Apparel Purchase Intentions

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Abstract: Despite the urgency of protecting the environment, unsustainable apparel consumption continues to damage it. We identified some of the most important consumer concerns (i.e., affordability, social desirability, environment protection) from the literature that influence consumers' sustainable apparel purchase intentions and proposed a conceptual model grounded in the Elaboration Likelihood Model to test the efficacy of user-centric advertisements in encouraging purchase intentions for sustainable apparel. We conducted a between-subject experiment with female millennials in the U.S. ($n = 344$). Analyzing the data through ANCOVA, MANCOVA, and structural equation modeling, we evinced that (i) irrespective of involvement with environmental issues, user-centric advertisements could be centrally (thoughtfully) processed when they incorporate consumers' concerns for affordability, social desirability, and environment protection; (ii) the central processing of user-centric advertisements mediates the relationship between advertisement modalities (textual and textual with visual) and affective response toward sustainable apparel; (iii) the processing of user-centric advertisements evokes favorable affective responses (e.g., desire) and minimizes unfavorable affective responses (e.g., boredom) toward sustainable apparel; and (iv) favorable and unfavorable affective responses positively and negatively influence purchase intentions for sustainable apparel, respectively. Based on our findings, we recommend that marketers should communicate how sustainable apparel meets consumers' concerns of affordability, social desirability, and environment protection in a holistic manner instead of using pro-environmental cues only.

Keywords: user-centric advertisement; consumer concerns; affective response; purchase intention; sustainable apparel

1. Introduction

Despite the urgency of protecting the environment, the purchase of unsustainable apparel prevails due to the existence of several barriers toward purchasing sustainable apparel. Sustainable apparel is relatively expensive, making it difficult for price-sensitive consumers to purchase [1]. Thus, affordability is an important concern influencing sustainable apparel purchase intentions. Sustainable apparel is also perceived as stylistically limited and a deterrent for self-expression, resulting in higher purchase intentions for fast fashion apparel [1,2]. As being presentable and fashionable help people gain social approval [2], style and self-expression are important concerns for social desirability, influencing sustainable apparel purchase intentions. People consume sustainably when they have high environmental concern or the need to project an environmentally responsible image [3,4]. Based on the aforementioned literature, we inferred that purchase intentions for sustainable apparel could be encouraged through a positive appraisal of sustainable apparel if sustainable apparel is affordable and helpful in projecting a socially desirable and environmentally conscious image. Such positive appraisals may evoke favorable affective responses toward and encourage purchase intentions for sustainable apparel.

Despite the significance of the concerns for buying affordable apparel, presenting oneself as socially desirable, and protecting the environment, there is a literature gap regarding how these concerns could be leveraged to encourage sustainable apparel purchase intentions. While affective factors influence intentions for sustainable consumption [5,6], Font et al. (2018) [7] suggested that user-centric advertisements evincing the benefits to the consumer, instead of just the environmental benefits, would encourage consumers' consideration of sustainable consumption. However, sustainable apparel brands (e.g., Patagonia, Reformation, TenTree, Nudie Jeans) primarily focus on the concern for protecting the environment in their advertisements, rather than highlighting consumers' concerns for apparel consumption. For example, the advertisements for Patagonia, Reformation, and TenTree fail to project how sustainable apparel could meet consumers' concerns about affordability, style, and self-expression, and Nudie Jeans does not communicate how sustainable apparel could be conducive to style and self-expression. Therefore, these advertisements seem to fail in comprehensively capturing consumers' concerns for apparel consumption and convincing consumers to buy sustainable apparel. Thus, we contend that these brands are missing out on the opportunity to convince consumers to engage in sustainable apparel consumption, especially when consumers' involvement with environmental issues is low and environmental appeals become irrelevant. We suggest that user-centric advertisements are instrumental in convincing consumers how sustainable apparel could be relevant and meaningful for them regardless of their involvement with environmental issues. In this study, we defined user-centric advertisements as messages communicating how a given product (e.g., sustainable apparel) meets consumers' concerns (e.g., concerns about buying affordably, being socially desirable, or protecting the environment) and benefits consumers directly instead of just how it protects the environment.

Based on the Elaboration Likelihood Model [8], we developed a conceptual model illustrating how the described user-centric advertisement appeal presented in different modalities (textual vs. visual vs. textual and visual) could be processed by consumers with varying levels of involvement with environmental issues (high vs. low), how that processing may evoke affective responses toward sustainable apparel, and how those affective responses may translate into purchase intentions for sustainable apparel. We used the Elaboration Likelihood Model [8] in our study because the theory explains how individuals process information depending upon their involvement with a particular issue. We collected data online by conducting a between-subject experiment involving U.S. female millennial consumers and tested the efficacy of a user-centric advertisement appeal, strongly focused on consumers' concerns for apparel consumption (e.g., affordability and social desirability in terms of style and self-expression) with a brief mention of environment protection, in evoking a favorable affective response toward and purchase intention for sustainable apparel. We chose this appeal because of its relevance to the proposal that sustainable apparel could satisfy consumers' concerns while protecting the environment along the way. We believe that our study opens a new avenue of research exploring how user-centric advertisements for sustainable apparel can enhance consumers' engagement and favorable experiences with sustainable apparel and encourage them to purchase it.

1.1. Literature Review and Research Hypotheses

1.1.1. Theoretical Framework: Elaboration Likelihood Model

The Elaboration Likelihood Model posits that individuals form or change their attitudes toward an issue/object through central and peripheral routes of persuasion. Rather than being mutually exclusive, these routes form two extreme points of a continuum, indicating the degree to which issue-relevant thinking precedes attitude formation [8,9]. Central processing pertains to careful issue-relevant evaluations when individuals have a high likelihood of elaboration [8,9], forming enduring attitudes toward the issue [8,10]. "Issue-involvement is the degree to which . . . a topic is a personally relevant issue" [11], p. 270. When the elaboration likelihood is low, individuals superficially evaluate issues through peripheral processing by accepting or rejecting heuristic cues (e.g., self-discrepancy,

attractiveness) [12], forming temporary attitudes toward the issue [8,10]. For example, consumers processing an advertisement message through the central route respond to the message first before making the final purchase decision, whereas consumers processing a message through the peripheral route bypass the stage of responding to the advertisement message and make the purchase decision immediately [13].

Attitudes formed through peripheral processing could be modified by central processing when individuals gain a high likelihood for elaboration due to high motivation, need for cognition, or other situational and individual difference variables [8]. However, alongside cognitive evaluations, attitudes are also formed by affective evaluations that could be evoked through both routes of persuasion [10]. For example, argument strength (i.e., the cogency of a message) is suggested to be more associated with high cognitive elaborations and central routes of persuasion [14]. As such, a positive (vs. negative) affective response is formed when the arguments are found (vs. not found) to be warranted after the thorough scrutiny of issue-relevant arguments. Such positive (vs. negative) affective responses may lead to pro-attitudinal (vs. counter-attitudinal) states [15,16]. Given the significance of affective factors in influencing sustainable consumption [5,6], we conceptualized the attitudinal response toward sustainable apparel as an affective response. We applied the propositions of the Elaboration Likelihood Model to explain the mechanisms of how (i) user-centric advertisements with different modalities (textual vs. visual vs. textual and visual) are processed (centrally or peripherally); (ii) affective responses toward sustainable apparel are formed through that processing; (iii) routes of persuasion mediate the relationship between message modalities and affective responses toward sustainable apparel; and (iv) affective responses toward sustainable apparel or message modalities influence purchase intention for sustainable apparel. Given the importance of issue involvement in influencing routes of persuasion, we examined how user-centric advertisements with different modalities are processed as a function of involvement with environmental issues (high vs. low).

1.1.2. Conceptual Model and Hypotheses

Relationship between advertisement message modalities, involvement with environmental issues, and routes of persuasion. Textual messages are processed centrally [17]. This might be because comprehending such messages takes time and high issue involvement [17]. When individuals are highly involved with an issue, they elaborate extensively on informational messages (e.g., textual messages) [18,19]. Rationale presented in texts and captions of a message are processed centrally [20]. For example, individuals engage in a thorough evaluation of an advertisement message to form enduring favorable perceptions about the advertisement [21]. When the likelihood for message elaboration is high, central cues (e.g., textual information) become salient [18,22]. The persuasiveness of the message increases when presented in a written format [18,23]. Message arguments in advertisements are processed centrally [24]. In the context of purchasing sustainable apparel, a group of consumers willingly sacrifice their needs to protect the environment [2]. For example, these consumers will refrain from buying apparel from fast fashion brands and willingly sacrifice their desire to be fashionable to reduce the negative impact on the environment [2]. Because such a mindful purchase of apparel reflects high involvement with environmental issues, we contend that these individuals would process textual messages in the user-centric advertisement centrally to evaluate the potential of the advertised apparel for protecting the environment. When product relevance is high, individuals elaborate message arguments centrally [22]. As such, substantive variations in the advertisements are needed to develop attitudes, rather than mere design modifications [25], plausibly because strong message arguments improve cognitive message elaborations [14]. For example, figurative headlines improve the central processing of messages, due to their strong argumentative positions [26]. Additionally, advertisements with a high amount of textual information are favored by individuals who are highly involved in the issue presented in the advertisement; these individuals engage in a thorough evaluation of the advertisement message [27]. Based on the discussion above, it was expected that indi-

viduals highly involved with environmental issues would process textual messages in a user-centric advertisement centrally to scrutinize the potential of the advertised apparel to protect the environment. Even though the advertisement appeal strongly emphasized the style, self-expression, and affordability of the sustainable apparel, individuals who were highly involved in environmental issues should have been able to determine that the advertisement was related to the use of sustainable apparel to construct multiple outfits and facilitate self-expression, thereby lowering the need to buy more clothing and protecting the environment. When individuals have low involvement with an issue, they do not elaborate informational messages (e.g., textual messages) [18]. However, in the context of this study, individuals who had low involvement with environmental issues may still have processed the textual cues in the user-centric advertisement appeal centrally when they recognized how their concerns for affordability, style, and self-expression could be met by the advertised sustainable apparel, thereby making the product relevant to them. The notion that high involvement with an issue leads to the central processing of a textual message is supported by the literature [8,9,18–20]. Therefore, we proposed that even if consumers do not have high involvement with environmental issues, they can still find user-centric advertisement appeals relevant due to the salience of cues for affordability and social desirability, enhancing the potential for central processing. Therefore, we put forward the following hypothesis:

Hypothesis 1 (H1): *Irrespective of individuals' involvement with environmental issues, textual cues in the user-centric advertisement will increase the central processing of the advertisement.*

Peripheral cues in advertisements (e.g., visual effects, attractiveness) lead to automatic and effortless elaborations when individuals have low involvement with an issue [17,18,23]. Individuals who have low involvement with an issue can become immersed in stories portrayed by advertisements through peripheral cues, rather than factual information (i.e., central cues) [18,28]. The vividness of a message positively influences engagement [29]. When individuals have low involvement with a product, self-congruency becomes a peripheral cue in forming attitudes toward the product as compared to individuals with high involvement [30]. Thus, when individuals have low involvement with environmental issues but find the visual cues of a user-centric advertisement congruent with their concerns for social desirability and affordability, the peripheral processing of the user-centric advertisement could occur. However, individuals who have high involvement with environmental issues may elaborate the visual cues centrally to evaluate how the apparel advertised in the user-centric advertisement could protect the environment. The rationale behind our argument is that in the absence of central (e.g., textual) cues, self-generated issue-relevant (e.g., sustainability-related) thoughts are processed centrally after exposure to the peripheral (e.g., visual) cues among individuals who are highly involved in the issue [30]. Since attitudes formed automatically (i.e., by peripheral processing) could be modified by central processing under high-elaboration conditions [31], we inferred that while self-generated issue-relevant thoughts may lead to the central processing of visual cues among individuals who have high involvement with environmental issues, self-congruence may lead to the peripheral processing of the same visual cues among individuals who have low involvement with environmental issues. Therefore, we proposed the following hypotheses:

Hypothesis 2 (H2): *When individuals have low involvement with environmental issues, visual cues in the user-centric advertisement will increase the peripheral processing of the advertisement.*

Hypothesis 3 (H3): *When individuals have high involvement with environmental issues, visual cues in the user-centric advertisement will increase the central processing of the advertisement.*

Since the elaboration of messages is also contingent upon the sufficiency of information [32], peripheral cues coupled with central cues may enhance the ability to elaborate

messages among low-involvement individuals. Peripheral and central cues together enhance the level of involvement, leading to the central processing of advertisements [33]. This might be especially true for low-involvement individuals, who often process advertisements through peripheral processing on the basis of attractiveness [12], forming temporary attitudes [8,10]. However, peripherally formed attitudes could be modified centrally when individuals gain a high likelihood for elaboration [8]. Under low-involvement conditions, when peripheral and central cues are combined, the use of peripheral cues increases message elaborations compared to declarative statements [34]. Given that peripheral processing can lead to central processing among high-involvement individuals [10], we proposed that the user-centric advertisements with textual and visual cues would be evaluated through central processing, irrespective of the level of involvement with environmental issues. For individuals who had high involvement with environmental issues, the visual cues would support the argument of the textual message pertaining to how the advertised apparel could protect the environment. For individuals who had low involvement with environmental issues, the visual and textual cues related to social desirability and affordability would increase self-congruence, increasing the likelihood of the central processing of the user-centric advertisement. Therefore, we hypothesized that:

Hypothesis 4 (H4): *Irrespective of the level of involvement with environmental issues, the user-centric advertisement with textual and visual cues will increase the central processing of the advertisement.*

Relationship between routes of persuasion and affective response toward sustainable apparel. High message elaboration results in positive thoughts about the object being evaluated under strong message arguments [24]. Affective responses refer to expressive emotional responses [35]. We conceptualized affective response toward sustainable apparel in terms of desire (favorable affective response toward sustainable apparel) and boredom (unfavorable affective response toward sustainable apparel). The extensive elaboration of weak message arguments may generate negative thoughts [24]. As the textual cues in the user-centric advertisement presented strong arguments for how the sustainable apparel could meet consumers' concerns for social desirability and affordability while also protecting the environment, the central processing of the advertisement could positively influence favorable affective responses toward the sustainable apparel. Voice (a peripheral cue) undergoes peripheral processing [23]. Advertisements with intense visuals evoke high affective responses [15,16]. As the visual cues in the user-centric advertisement showed how the sustainable apparel satisfies consumers' concerns, we expected that these peripherally processed cues would evoke highly favorable affective responses toward the sustainable apparel. Peripheral and central cues together give rise to central processing [36] and evoke enduring positive attitudes toward advertisements [36,37]. Coupling high sensational value with cognitive value (e.g., detailed information) in advertisements enhances message persuasiveness, due to generating stronger affective responses, as compared to when only cognitive value is present [15,16]. Thus, we proposed the following hypotheses:

Hypothesis 5 (H5): *The central processing of the user-centric advertisement will (H5a) positively influence favorable affective responses (e.g., desire) and (H5b) negatively influence unfavorable affective responses (e.g., boredom) toward sustainable apparel.*

Hypothesis 6 (H6): *The peripheral processing of the user-centric advertisement will (H6a) positively influence favorable affective responses (e.g., desire) and (H6b) negatively influence unfavorable affective responses (e.g., boredom) toward sustainable apparel.*

Hypothesis 7 (H7): *The user-centric advertisement with textual and visual modality will (H7a) evoke more favorable affective responses (e.g., desire) and (H7b) reduce unfavorable affective responses (e.g., boredom) toward sustainable apparel, compared to when the user-centric advertisement is presented through textual or visual modality alone.*

Hypothesis 8 (H8): *The route of persuasion mediates the relationship between the modalities of the user-centric advertisement and affective responses toward sustainable apparel. Specifically, H8a: Central processing mediates the relationship between textual modality and affective response toward sustainable apparel. H8b: Peripheral processing mediates the relationship between visual modality and affective response toward sustainable apparel. H8c: Central processing mediates the relationship between textual and visual modality and affective response toward sustainable apparel.*

Relationship between affective response toward sustainable apparel and purchase intentions for sustainable apparel. Affective responses influence consumers' engagement with an object [29]. The perceived informativeness of a message about a product (i.e., central cue) evokes a favorable attitude toward the product, which in turn positively influences purchase intention for that product [13]. Positive thoughts evoked by elaborations generate confidence, leading to positive attitudes toward products [24]. Consumers form favorable perceptions about advertisements when they find the message argument and peripheral cues credible, leading to positive purchase intentions [37]. Therefore, we expected that when the message arguments and peripheral cues in the user-centric advertisement were credible, consumers may experience favorable affective responses toward sustainable apparel, leading to positive purchase intentions. Additionally, anticipatory emotions toward pro-environmental behaviors (e.g., pride, guilt) influence pro-environmental behavioral intentions [4,38]. A sense of pride (guilt) for (not) making a sustainable purchase decision begets sustainable purchase decisions to reaffirm (compensate for) the sense of pride (guilt) [6]. Therefore, the user-centric advertisements could evoke in individuals positive affective responses toward sustainable apparel due to positive anticipatory emotions in the hope of protecting environment (e.g., among individuals who are highly involved in environmental issues) or buying affordable apparel/being socially desirable (e.g., among individuals who have low involvement with environmental issues). Therefore, we inferred that favorable affective responses toward sustainable apparel evoked by the processing of the user-centric advertisement could positively influence purchase intentions for sustainable apparel. We hypothesized that:

Hypothesis 9 (H9): *(H9a) Favorable affective responses (e.g., desire) toward sustainable apparel will positively influence purchase intention for sustainable apparel, and (H9b) unfavorable affective responses (e.g., boredom) toward sustainable apparel will negatively influence purchase intention for sustainable apparel.*

Relationship between message modalities and purchase intention for sustainable apparel. Advertisements with visual and textual cues related to sustainability improve purchase intentions for sustainable products, even among consumers who have low involvement with environmental issues [39]. Visual sustainable cues can improve sustainable purchase intentions among consumers who have high involvement with environmental issues [39]. Textual sustainable cues, however, do not translate into sustainable purchase intentions, unless consumers are already engaged in sustainable consumption behavior [40]. We postulated that textual cues alone may not encourage purchase intentions for sustainable apparel among individuals who have low involvement with environmental issues. As affect plays a greater role in encouraging sustainable behavior than logical reasoning [5,6] and textual cues are processed through logical reasoning [17], we expected that the user-centric advertisement with textual and visual cues would result in higher purchase intentions for sustainable apparel than the user-centric advertisement with textual or visual cues alone. Additionally, as consumers pay attention to the aesthetic factors in a sustainable advertisement while making purchase decisions [41], the user-centric advertisement with textual and visual cues would allow consumers to evaluate the aesthetic value (e.g., style, self-expression) of the sustainable apparel, increasing their purchase intentions. Therefore, we hypothesized that:

Hypothesis 10 (H10): *Textual and visual cues combined in the user-centric advertisement will result in higher purchase intentions for the sustainable apparel than the user-centric advertisement with textual or visual cues alone.*

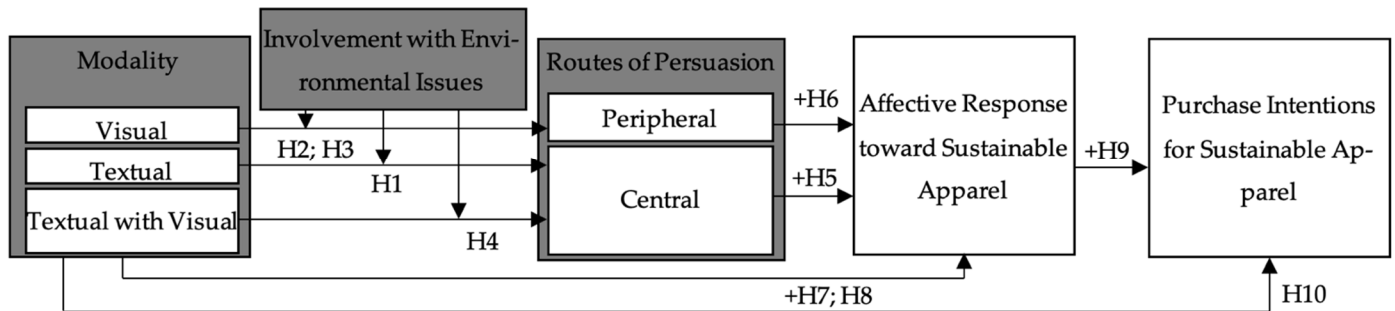Based on H1–H10, we proposed the following conceptual model (Figure 1):

Figure 1. Conceptual model.

2. Materials and Methods

2.1. Research Design

We conducted a between-subject (user-centric advertisement with textual vs. visual vs. textual and visual modalities) experiment. As the user-centric advertisement focused on style, self-expression, and affordability, individuals with high fashion innovativeness (i.e., the urge to be fashionable and follow trends; [42]) and concern for affordability had higher potential for central processing than individuals with low fashion innovativeness and concern for affordability, especially when they had high need for cognition (i.e., the innate need to process complex messages and engage in intellectual tasks; [43]). Therefore, we statistically controlled for fashion innovativeness, concern for affordability, and need for cognition to enhance the internal validity of the experiment.

2.2. Sample and Sampling Procedure

Researchers have targeted millennials (i.e., individuals born between 1981 and 1996, [44]) for studies on sustainability, due to their high involvement with environmental issues, cause-related consumption intentions, and behavior [45,46]. Millennials form the largest generational cohort in the U.S. [44]. Given that our study was focused on sustainable apparel purchase intentions, millennials formed an ideal target population. Millennials comprise the core workforce of Amazon Mechanical Turk (MTurk; [47]). Therefore, MTurk was an ideal sampling frame. However, female consumers have higher concern for environment protection, sustainability [45,46], and style than male consumers [48]. As our user-centric advertisements reflected concern for both style and the environment, female millennials from the U.S. were recruited from MTurk through homogenous sampling. A subject-to-item ratio of 10:1 is considered acceptable for conducting factor analysis [49,50]. The maximum number of items in a single scale for this study was 10. Therefore, a minimum sample size of 100 was considered adequate to run the factor analysis. A minimum sample size of 300 is deemed sufficient to make close approximation estimates for the population parameters for data analyses involving ANCOVA [51]. The minimum sample size for calculating Structural Equation Modeling is 200 (SEM, [52]). For SEM analysis, a minimum sample size of 150 is considered sufficient for convergence and proper solutions when latent variables with three or more indicators per factor exist [53]. Given all latent variables in this study had more than three indicators per factor, a minimum sample size of 300 was considered acceptable to compute all required analyses (i.e., EFA, ANCOVA, and SEM).

2.3. Stimuli (User-Centric Advertisements with Textual vs. Visual vs. Textual and Visual Modalities) Development

Vetta is a sustainable apparel brand that specializes in creating clothing capsules (i.e., a clothing collection created by mixing and matching a certain number of items that can be worn in different styles). We adapted Vetta's existing advertisements to develop our user-centric advertisements in Adobe Photoshop. For example, the collection of clothing items presented in the visual and textual–visual modalities of the user-centric advertisements were adapted from one of Vetta's clothing capsules (see Figures A1–A3 in Appendix A). Vetta advertises clothing capsules whereby one can create 30 different outfits by mixing and matching 5 clothing items. In our user-centric advertisements with textual and textual–visual modalities, we included written information stating that buying 5 sustainable items of clothing could save more than USD 2500 (considering an average price of around USD 100 for a piece of sustainable clothing) and open avenues for individual style and self-expression. In the visual and textual–visual modalities, the visual cue for saving money was represented by piles of gold coins. The images of 5 clothing items being worn in 30 different ways represented the cues for social desirability in the form of communicating one's sense of individual style and self-expression. Further, adapting from H&M's conscious collection advertisements, we used a background of flowers and leaves in the user-centric advertisements for all the modalities, to reflect a love for nature. No textual message related to the concern for protecting the environment was included, in order to keep the focus on the concerns of affordability and social desirability. We created the user-centric advertisements for a fictitious brand, Fern, hinting at love for nature. A fictious brand name was used to avoid confounding effects due to brand familiarity. This enhanced the internal validity of the experiment. We finalized the user-centric advertisements by conducting a pre-test with a student sample recruited from a southeastern university in the U.S. (see Table A1 in Appendix B—for examples of the finalized user-centric advertisements, see Appendix A).

2.4. Experiment Procedure: Main Study

The MTurk participants self-administered and responded to a Qualtrics survey. We used screening questions to ensure participation from U.S. female millennials only. The screened-in participants first responded to the question on involvement with environmental issues, followed by some unrelated (filler) questions, to distract them from the effect of responding to the question on involvement with environmental issues. Next, they were informed that they would be shown an advertisement for a new apparel brand, named Fern, and the researchers were interested in knowing their opinion about the advertisement. The participants were randomly assigned to one of the three user-centric advertisements (i.e., the advertisements in one of the three message modalities). After observing the user-centric advertisement, they responded to the manipulation check questions for the user-centric advertisement modalities, followed by the questions on the research variables, control variables, and demographics. Participants were given compensation of 50 cents after the successful completion of the survey.

2.5. Measures

We measured involvement with environmental issues [54,55], central processing [11], peripheral processing [56,57], affective response toward sustainable apparel [58], purchase intention for sustainable apparel [59], fashion innovativeness [42,60], concern for affordability [61], and need for cognition [43] on 7-point Likert scales (1 = strongly disagree; 7 = strongly agree), by adapting extant scales. Items in each of the scales were randomized to minimize potential order effects. Attention check questions (e.g., "please click on strongly agree if you are reading this statement") were used to detect straight liner responses. Before taking the survey, the participants read and consented to the Institutional-Review-Board-approved information form.

3. Results

3.1. Main Study

3.1.1. Demographics

Out of the 432 responses collected from Mturk, 88 were deleted due to straight liner responses, making the usable sample size 344. The majority of the participants were 30–35 years old; had a 4-year college degree and an annual household income between 31,000 and 60,000 USD; and were married, employed for wages, and Caucasian (see Table 1). In 2018, around 8%, 25%, 28%, and 39% of millennials in the U.S. had an educational qualification of less than high school graduation, high school graduation, some college, and bachelor's degree or higher, respectively [44]. Therefore, participants in our sample were slightly more educated than the average for millennials in the U.S. In 2018, 72% of female millennials in the U.S. were employed. The median annual earnings among full-time working millennials in the U.S. was between 31,300 and 56, 000 USD [44]. This resembled our sample closely. In 2018, 46% of millennials in the U.S. were married, which was slightly lower than the percentage of married individuals in our sample. Thus, although the demographics of our sample were not identical to those of the average millennial in the U.S., they were sufficiently close.

Table 1. Demographics of the millennials in this study.

Measures	Categories	f	%
Age (in years)	24–29	104	30.2
	30–35	146	42.5
	36–39	94	27.3
Highest level of educational qualification	Some high school	4	1.2
	High school degree	57	16.6
	Some college or technical school	45	13.1
	College degree (4 years)	155	45.1
	Some graduate school	18	5.2
	Graduate degree (master's, doctorate, etc.)	65	18.9
Annual household income (in USD)	30,000 or less	63	18.3
	31,000 to 60,000	117	34.0
	61,000 to 90,000	95	27.6
	91,000 to 120,000	46	13.4
	121,000 to 150,000	11	3.2
	151,000 or more	12	3.5
Marital status	Single, never married	152	44.2
	Married	172	50.0
	Divorced	13	3.8
	Separated	4	1.2
	Cohabitating	2	0.6
	Dating	1	0.3
Employment status	Currently unemployed	21	6.1
	Employed for wages	251	73.0
	Self-employed	29	8.4
	Homemaker	30	8.7
	Student	9	2.6
	Other (disabled, full-time employee)	4	1.2
Ethnicity	Asian/Pacific islander	33	9.6
	Caucasian	260	75.6
	African American	28	8.1
	Latino/Hispanic	16	4.7
	Other (mixed/biracial)	7	2

3.1.2. Manipulation Check

From the results of the one-way ANOVA in SPSS (version 25), we found that the manipulation check for the three modalities was successful. The stimulus in (i) the visual modality was rated significantly higher in the item "I think that the advertisement message

is primarily conveyed through visuals" than for the textual and textual–visual modalities ($F = 88.18$; $p < 0.001$); (ii) the textual modality was rated significantly higher in the item "I think that the advertisement message is primarily conveyed through textual information" than for the visual and textual–visual modalities ($F = 83.76$; $p < 0.001$); and (iii) the textual–visual modality was rated significantly higher in the item "I think that the advertisement message is primarily conveyed through both visual and textual information" than for the textual and visual modalities ($F = 36.17$; $p < 0.001$) (see Table A2 in Appendix B).

3.1.3. Reliability and Validity of Scales

From the Confirmatory Factor Analysis (CFA) performed in Mplus (version 8.4), we found that the measurement model fit the data well ($\chi^2 = 1971.55$, $df = 1082$, $p < 0.001$; $\chi^2/df = 2.28$; RMSEA = 0.05; CFI = 0.93, TLI = 0.93, SRMR = 0.04). All the scales had adequate reliability (factor loadings > 0.71; Cronbach's α and composite reliability (CR) > 0.74) and convergent (AVE > 0.50) (see Table 2) and discriminant validity (square root of AVE > inter-construct correlations) (see Table 3).

Table 2. Measurement scale items with their factor loadings from CFA, AVE, and reliabilities.

Items	CFA Factor Loading	AVE	CR	α
Involvement with environmental issues		0.58	0.95	0.94
1. I feel a personal obligation to do whatever I can to prevent climate change.	0.87			
2. I feel a sense of personal obligation to take action to stop the disposal of toxic substances in the air, water, and soil.	0.83			
3. People like me should do whatever we can to prevent loss of tropical forests.	0.80			
4. Climate change will be a very serious problem for me and my family.	0.76			
5. I am very concerned about the environment.	0.86			
6. I would be willing to reduce my consumption to help protect the environment.	0.81			
7. Protecting the natural environment increases my quality of life.	0.78			
8. I would avoid buying clothing items if it had potentially harmful environmental effects.	0.72			
9. Supporting environment protection makes me more committed to the environment.	0.88			

Table 2. *Cont.*

Items	CFA Factor Loading	AVE	CR	α
Purchase intention for sustainable apparel		0.73	0.93	0.93
1. I want to buy sustainable apparel because it reduces my impact on the environment.	0.84			
2. Instead of paying for 2–3 items of apparel, I would like to buy one sustainable item of apparel as shown in the advertisement and wear it for a long time.	0.84			
3. Instead of paying for 2–3 items of apparel, I would like to buy one sustainable item of apparel as shown in the advertisement and wear it in different styles.	0.82			
4. I will likely buy sustainable apparel in the future.	0.89			
5. I will definitely buy sustainable apparel.	0.89			
Favorable affective response toward sustainable apparel: desire		0.58	0.74	0.74
1. I felt very desirous.	0.78			
2. I felt very full of craving.	0.74			
Unfavorable affective response toward sustainable apparel: boredom		0.66	0.80	0.79
3. I felt very bored.	0.76			
4. I felt very unimpressed.	0.87			
Central processing		0.61	0.92	0.92
1. I am attempting to analyze the issue in the advertisement message.	0.74			
2. I am deep in thought about the message presented in the advertisement.	0.85			
3. I am expending a good deal of thinking about the advertisement message.	0.85			
4. I am really exerting my mind thinking about the advertisement message.	0.79			
5. I am doing my best to think about the advertisement message.	0.72			
6. I am reflecting on the implications of the arguments made in the advertisement message.	0.74			
7. I am searching my mind in response to the ideas presented in the advertisement.	0.79			
Peripheral processing based on attractiveness		0.67	0.80	0.79
1. The overall attractiveness of this advertisement is very important for me while I am evaluating it.	0.90			
2. I am evaluating the advertisement largely on the basis of its attractiveness.	0.72			

Table 2. *Cont.*

Items		CFA Factor Loading	AVE	CR	α
Peripheral processing based on effortless processing			0.66	0.92	0.92
3.	I am effortlessly trying to relate how the advertisement matches with my own self-image.	0.89			
4.	I am effortlessly trying to relate how the advertisement matches my taste for apparel.	0.71			
5.	I am effortlessly trying to relate how the advertisement matches with my mood.	0.72			
6.	I am effortlessly trying to relate how the advertisement marches with the way I see myself.	0.86			
7.	I am effortlessly trying to relate how the advertisement matches with who I am.	0.84			
8.	I am effortlessly trying to relate how the advertisement can mirror my image.	0.84			
Fashion innovativeness			0.54	0.96	0.95
1.	Compared to my friends, I own very new-fashioned clothes.	0.82			
2.	I know the names of new fashion designers before other people do.	0.82			
3.	If I heard that new-fashioned clothes were available in store, I would be interested enough to buy them.	0.81			
4.	I will buy new-fashioned clothes even if I have not seen them before.	0.73			
5.	Fashionable, attractive clothing is very important to me.	0.75			
6.	Keeping up with the latest fashions is important to me.	0.89			
7.	I spend considerable time and effort learning about the latest fashions.	0.86			
8.	I keep my wardrobe up-to-date with the changing fashions.	0.88			
9.	I usually have one or more outfits of the newest fashion.	0.85			
10.	I consciously choose something that reflects the current fashion.	0.82			

Table 2. *Cont.*

Items	CFA Factor Loading	AVE	CR	α
Concern for affordability		0.63	0.96	0.95
1. I do not buy apparel when it costs too much.	0.92			
2. I will not buy apparel if it costs too much.	0.94			
3. I will probably not buy apparel if it costs too much.	0.89			
4. I will definitely not buy apparel if it costs too much.	0.89			
Need for cognition		0.67	0.80	0.80
1. I would prefer complex to simple problems.	0.87			
2. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.	0.77			

Table 3. Mean, standard deviation, and correlations of the research variables.

Variables	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Involvement with environmental issues	5.33	1.23	**0.76**									
2. Purchase intention	5.07	1.29	0.72 **	**0.85**								
3. Affective response: desire	3.82	1.45	0.38 **	0.43 **	**0.76**							
4. Affective response: boredom	3.14	1.55	−0.49 **	−00.53 **	−00.29	**0.81**						
5. Central processing	4.84	1.23	0.37 **	0.42 **	0.41 **	−00.25 **	**0.78**					
6. Peripheral processing: attractiveness	4.97	1.29	0.18 **	0.17 **	0.23 **	−00.09	0.35 **	**0.82**				
7. Peripheral processing: effortless	4.69	1.23	0.33 **	0.37 **	0.36 **	−00.19 **	0.35 **	0.46 **	**0.81**			
8. Fashion innovativeness	3.45	1.48	0.10	0.15 **	0.33 **	−00.00	0.19 **	0.28 **	0.27 **	**0.73**		
9. Concern for affordability	5.85	1.35	−0.11 *	−00.13 *	−00.17 **	0.14 **	−0.08	−00.11 *	−00.06	−00.49 **	**0.79**	
10. Need for cognition	4.37	1.46	0.18 **	0.13 *	0.13 *	0.06	0.28 **	0.20 **	0.09	0.04	−0.06	**0.82**

Note: the numbers in the diagonal represent the square root of the AVE of the research variables. * $p < 0.05$, ** $p < 0.01$.

3.1.4. Hypotheses Testing

All the hypotheses were tested at the 0.05 significance level. We tested H1–H4 in SPSS through MANCOVA, with involvement in environmental issues and modality as fixed factors; fashion innovativeness, concern for affordability, and need for cognition as covariates; and central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing as dependent variables. Participants were divided into groups of high- and low-involvement with environmental issues through the median split method.

H1–H4. After controlling for the effects of fashion innovativeness, need for cognition, and concern for affordability, we found from the MANCOVA of between-subject effects that: (i) Involvement with environmental issues had a significant main effect on central processing ($F = 30.74$, $df = 1$, $p < 0.001$; partial $\eta^2 = 0.08$, observed power = 1.00); peripheral processing based on attractiveness ($F = 6.35$, $df = 1$, $p < 0.05$; partial $\eta^2 = 0.02$, observed power = 0.71); and peripheral processing based on effortless processing ($F = 10.19$, $df = 1$, $p < 0.01$; partial $\eta^2 = 0.03$, observed power = 0.89). (ii) Modality had a significant main effect on central processing ($F = 6.15$, $df = 2$, $p < 0.01$; partial $\eta^2 = 0.04$, observed power = 0.89) and a marginal significant effect on peripheral processing based on attractiveness ($F = 2.65$, $df = 2$, $p = 0.07$; partial $\eta^2 = 0.02$, observed power = 0.52), but no significant main effect on peripheral processing based on effortless processing ($F = 1.02$, $df = 2$, $p = 0.36$; partial $\eta^2 = 0.01$, observed power = 0.23). (iii) Involvement with environmental issues and modality had a significant interaction effect on central processing ($F = 3.97$, $df = 2$, $p < 0.05$; partial $\eta^2 = 0.02$, observed power = 0.71) but not on peripheral processing based on attractiveness ($F = 0.53$, $df = 2$, $p = 0.59$; partial $\eta^2 = 0.00$, observed power = 0.13) or peripheral processing based on effortless processing ($F = 0.16$, $df = 2$, $p = 0.85$; partial $\eta^2 = 0.00$, observed power = 0.08).

H1. Given that central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing were measured on 7-point Likert scales, 4 was the neutral point. Therefore, a mean score significantly above 4 indicated an increase in central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing on their respective scales. One-sample *t*-tests indicated that the mean scores of central processing ($t = 12.69$, $df = 343$, $p < 0.001$; $M = 4.84$, $SD = 1.23$, $MD = 0.84$), peripheral processing based on attractiveness ($t = 14.03$, $df = 343$, $p < 0.001$; $M = 4.97$, $SD = 1.29$, $MD = 0.97$), and peripheral processing based on effortless processing ($t = 10.40$, $df = 343$, $p < 0.001$; $M = 4.69$, $SD = 1.23$, $MD = 0.69$) were significantly higher than 4. Therefore, there were significant increases in central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing.

Figure 2 shows that when the advertisement modality was textual, the estimated marginal means (*EMM*) of central processing were 4.55 ($M = 4.46$, $SD = 1.86$) and 5.44 ($M = 5.46$, $SD = 0.95$) for a low and high level of involvement with environmental issues, respectively. Therefore, although central processing was higher when involvement with environmental issues was high, textual modality increased the central processing of the user-centric advertisements, irrespective of the level of involvement with environmental issues. This supported H1.
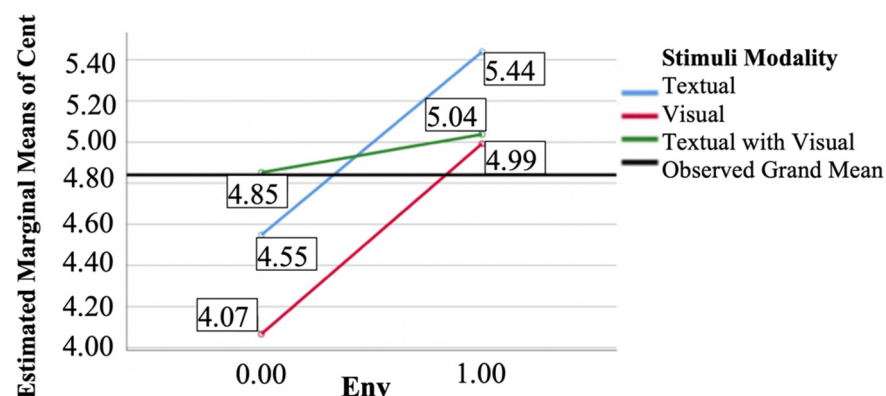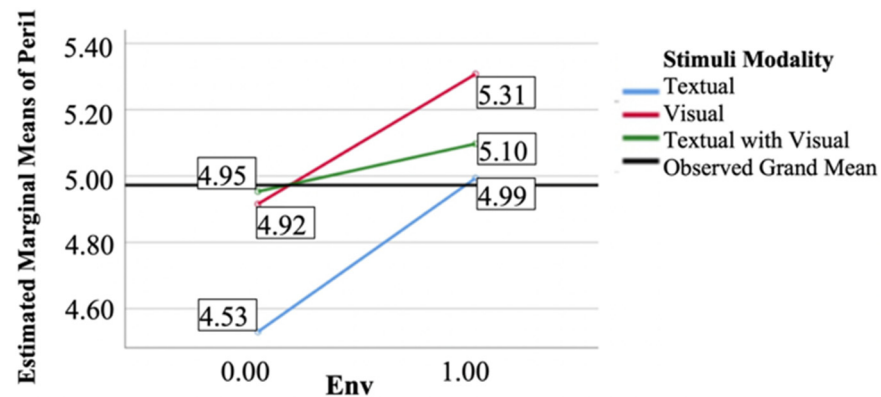

Figure 2. Effect of modalities on central processing (Cent), as a function of low (0.00) and high (1.00) levels of involvement with environmental issues (Env).

In Figures 3 and 4, we show that the *EMMs* of peripheral processing based on attractiveness (*EMM* = 4.53, $M = 4.33$, $SD = 1.21$) and peripheral processing based on effortless processing (*EMM* = 4.41, $M = 4.43$, $SD = 1.38$) for the textual modality were less than

4.55 (*EMM* of central processing) when the involvement with environmental issues was low. Similarly, when the involvement with environmental issues was high, the *EMM* of peripheral processing based on attractiveness (*EMM* = 4.99, *M* = 5.00, *SD* = 1.30) and peripheral processing based on effortless processing (*EMM* = 4.82, *M* = 4.82, *SD* = 1.18) for the textual modality were less than 5.44 (*EMM* of central processing). These results further indicate that, irrespective of the level of involvement with environmental issues, the textual modality increased the central processing of the user-centric advertisements, corroborating H1.

Figure 3. Effect of modalities on peripheral processing based on attractiveness (Peri1), as a function of low (0.00) and high (1.00) levels of involvement with environmental issues (Env).
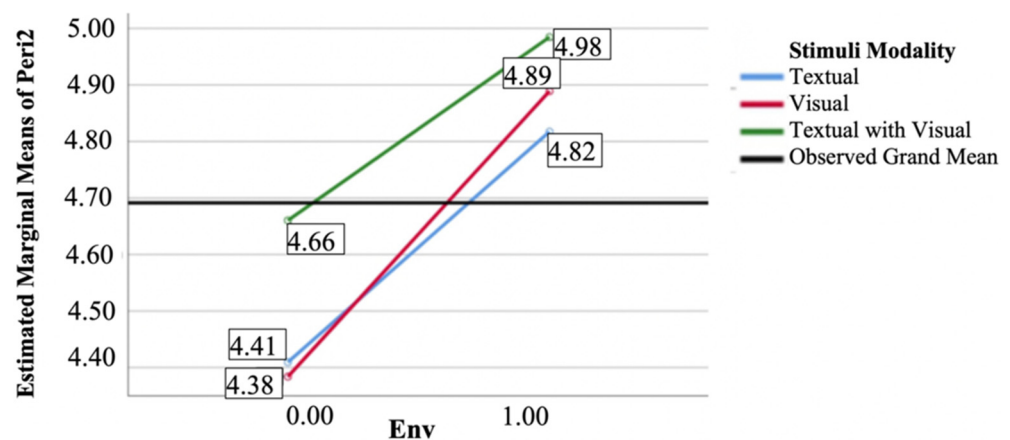
Figure 4. Effect of modalities on peripheral processing based on effortless processing (Peri2), as a function of low (0.00) and high (1.00) levels of involvement with environmental issues (Env).

H2–H3. In Figure 2, we show that for the user-centric advertisements in the visual modality, the *EMM* of central processing was higher (*EMM* = 4.99, *M* = 5.08, *SD* = 1.30) when involvement with environmental issues was high than when involvement with environmental issues was low (*EMM* = 4.07, *M* = 4.06, *SD* = 1.38). Therefore, when the involvement with environmental issues was high, the visual modality increased the central processing of the user-centric advertisements, supporting H2. The *EMM* of central processing was higher than the *EMM* of peripheral processing based on effortless processing (*EMM* = 4.89, *M* = 4.92, *SD* = 1.25) for the visual modality when the involvement with environmental issues was high, further supporting H2. However, the *EMM* of central processing was lower than the *EMM* of peripheral processing based on attractiveness (*EMM* = 4.89, *M* = 5.31, *SD* = 1.02) for the visual modality when the involvement with environmental issues was high (see Figure 3). We postulated that the visuals in the user-centric advertisements first increased peripheral processing based on attractiveness, before

initiating a temporary phase of peripheral processing based on effortless processing and a final stage of intense central processing, when involvement with environmental issues was high. When involvement with environmental issues was low, the *EMM*s of peripheral processing based on attractiveness (*EMM* = 4.92, *M* = 4.91, *SD* = 1.27) and peripheral processing based on effortless processing (*EMM* = 4.38, *M* = 4.39, *SD* = 1.32) for the visual modality were greater than the neutral score of 4 (see Figures 3 and 4) and the *EMM* of central processing for the visual modality (*EMM* = 4.07, *M* = 4.06, *SD* = 1.38). Therefore, given that the visual modality increased peripheral processing based on attractiveness and peripheral processing based on the effortless processing of the user-centric advertisements when involvement with environmental issues was low, our results supported H3, which proposed that the visual modality would increase the peripheral processing of the user-centric advertisements when involvement with environmental issues was low.

    H4. In Figure 2, we showed that the *EMM*s of the central processing of the user-centric advertisements in the textual and visual modality for both low (*EMM* = 4.85, *M* = 4.79, *SD* = 1.04) and high (*EMM* = 5.04, *M* = 5.09, *SD* = 1.31) involvement with environmental issues were greater than the neutral score of 4. Therefore, irrespective of the level of involvement with environmental issues, the textual and visual modality increased the central processing of the user-centric advertisements, supporting H4. The *EMM* of central processing was higher than the *EMM* of peripheral processing based on effortless processing when the involvement with environmental issues was low (*EMM* = 4.66, *M* = 4.79, *SD* = 1.04) and high (*EMM* = 4.98, *M* = 5.05, *SD* = 1.22) (see Figure 4), further supporting H4. Interestingly, the mean scores of peripheral processing based on attractiveness were higher than central processing when involvement with environmental issues was low (*EMM* = 4.95, *M* = 4.91, *SD* = 1.21) and high (*EMM* = 5.10, *M* = 5.18, *SD* = 1.30) (see Figure 3). We postulated that while the textual and visual modality increased the central processing of the user-centric advertisements, peripheral processing based on attractiveness may have also occurred, irrespective of the level of involvement with environmental issues. As such, the user-centric advertisements in the textual and visual modality may have first increased peripheral processing based on attractiveness, before initiating a temporary phase of peripheral processing based on effortless processing and a final stage of intense central processing, when the involvement with environmental issues was both high and low.

    H10. We ran ANCOVA with purchase intention for sustainable apparel as the dependent variable; modality as the fixed factor; and fashion innovativeness, concern for affordability, and need for cognition as the covariates. We controlled the effects of fashion innovativeness, need for cognition, and concern for affordability and found no significant difference in the means of purchase intention for sustainable apparel between the three modalities (*F* = 0.55, *p* = 0.58), thus rejecting H10. From the one-sample *t*-test, we found that the mean score of purchase intention for sustainable apparel was significantly higher than 4 (*t* = 15.41, *df* = 343, *p* < 0.001; *M* = 5.07, *SD* = 1.29, *MD* = 1.07). Therefore, while all the modalities increased purchase intention for sustainable apparel, none of them was more effective than the other two in increasing purchase intention for sustainable apparel.

    Additional analysis. We performed a series of one-way ANOVA to analyze the underlying contrast effects, with modality as the independent variable and (i) central processing (*F* = 2.80, *p* = 0.06) and (ii) peripheral processing based on attractiveness (*F* = 3.45, *p* < 0.03) as the dependent variables. Peripheral processing based on effortless processing was not included due to the non-significant main effect of modality on peripheral processing based on effortless processing. From the simple contrast tests, we found that there was (i) a significant difference in the means of central processing between the textual and visual modalities (*t* = 2.25, *df* = 341, *p* < 0.05), where the mean of central processing for the textual modality was higher than the mean of central processing for the visual modality; (ii) no significant difference in the means of central processing between the textual and textual–visual modalities (*t* = 0.48, *df* = 341, *p* = 0.63); (iii) a marginally significant difference in the means of central processing between the visual and textual–visual modalities (*t* = −1.74, *df* = 341, *p* = 0.08); and (iv) a significant difference in the means of peripheral

processing based on attractiveness between the textual and visual modalities (t = 2.59, df = 341, $p < 0.01$), where the mean of peripheral processing based on attractiveness for the visual modality was higher than the mean of peripheral processing based on attractiveness for the textual modality. These results further supported the proposition that both textual and textual–visual modalities increase central processing and are thus not significantly different in their potential for increasing the central processing of user-centric advertisements. Although the peripheral processing based on attractiveness of the user-centric advertisements in the visual modality was higher than in the textual modality, the central processing of the user-centric advertisements in the visual and the textual–visual modalities differed only marginally, indicating that visuals aid in the central processing of user-centric advertisements.

H5–H9. Three models were run through SEM in Mplus to test H5-H9 and the overall feasibility of the conceptual model. The scores of the manipulation check items of the three modalities were used as proxies to represent the three modalities. The rationale behind this came from the successful manipulation of the three modalities. We ran Model 1 without involvement with environmental issues and its interaction terms with the manipulation check scores of the textual (Man_T), visual (Man_V), and textual–visual (Man_TV) modalities. Model 1 fit the data well (χ^2 = 451.13, df = 273, $p < 0.001$; χ^2/df = 1.65; RMSEA = 0.04; CFI = 0.97, TLI = 0.96; SRMR = 0.04). Model 1 indicated that Man_T (β = 0.15, $p < 0.05$) and Man_TV (β = 0.20, $p < 0.001$) positively influenced central processing, resonating with the MANCOVA results suggesting that the user-centric advertisements in both the textual (H1) and textual–visual (H4) modalities increased central processing. Man_V positively influenced central processing (β = 0.23, $p < 0.001$), corroborating H2, which proposed that the central processing of user-centric advertisements in the visual modality could take place. Man_V marginally and positively influenced peripheral processing based on attractiveness (β = 0.12, $p = 0.088$), corroborating H3, which proposed that the peripheral processing based on attractiveness of user-centric advertisements in the visual modality could take place. Man_V did not significantly influence peripheral processing based on effortless processing (β = 0.00, $p = 0.97$), resonating with the MANCOVA results suggesting that peripheral processing based on attractiveness was higher for the user-centric advertisements in the visual modality than peripheral processing based on effortless processing.

H5–H6. Central processing positively influenced desire (β = 0.37 ***, $p < 0.001$), supporting H5a, which postulated that the central processing of the user-centric advertisements would positively influence favorable affective responses toward sustainable apparel. Central processing also negatively influenced boredom (β = −0.27, $p < 0.001$), further corroborating H5b, which proposed that central processing would not only evoke favorable affective responses toward sustainable apparel (desire) but also lower unfavorable affective responses toward sustainable apparel (boredom). Peripheral processing based on effortless processing positively influenced desire (β = 0.38, $p < 0.001$), but peripheral processing based on attractiveness did not (β = −0.10, $p = 0.29$), thereby partially supporting H6a. Peripheral processing based on effortless processing marginally and negatively influenced boredom (β = −0.17, $p = 0.078$), but peripheral processing based on attractiveness did not (β = 0.06, $p = 0.62$). Therefore, our results partially and marginally supported H6b. We postulated that at least some effortless processing was required to evoke either a favorable (desire) or unfavorable (boredom) affective response toward sustainable apparel.

H7, H9. Man_T (β = 0.15, $p < 0.05$) and Man_V (β = 0.16, $p < 0.05$) positively influenced desire, but Man_TV did not (β = 0.09, $p = 0.16$), partially supporting H7a. Therefore, the higher the amount of textual information or visuals in the user-centric advertisements, the stronger the favorable affective responses toward sustainable apparel (desire). However, as both textual and visual information increased, desire did not increase. Man_T (β = 0.01, $p = 0.93$), Man_V (β = 0.03, $p = 0.72$), and Man_TV (β = −0.06, $p = 0.37$) did not significantly influence boredom, thereby contradicting H7b. Therefore, none of the modalities were effective in lowering unfavorable affective responses toward sustainable apparel. Desire positively influenced purchase intention for sustainable apparel (β = 0.40, $p < 0.001$),

supporting H9a. Boredom negatively influenced purchase intention for sustainable apparel ($\beta = -0.46$, $p < 0.001$), indicating that unfavorable affective responses toward sustainable apparel negatively influenced purchase intention, further supporting H9b.

H8. Model 2 was run to test if specific routes of processing the user-centric advertisements mediated the relationship between modalities and affective responses toward sustainable apparel. Model 2 fit the data well ($\chi^2 = 463.53$, $df = 279$, $p < 0.001$; $\chi^2/df = 1.66$; RMSEA = 0.04; CFI = 0.97, TLI = 0.96; SRMR = 0.05). In this model, we constrained the direct paths from Man_T, Man_V, and Man_TV to desire and boredom to zero. Central processing mediated the relationship between (i) Man_T and desire ($\beta = 0.07$, $p < 0.05$, C.I = [0.01, 0.08]) and (ii) Man_TV and desire ($\beta = 0.08$, $p < 0.05$, C.I = [0.02, 0.10]). Peripheral processing based on attractiveness did not mediate the relationship between (i) Man_V and desire ($\beta = 0.00$, $p = 0.81$, C.I = [-0.02, 0.01]) and (ii) Man_V and boredom ($\beta = 0.01$, $p = 0.73$, C.I = [-0.01, 0.02]). Peripheral processing based on effortless processing did not mediate the relationship between (i) Man_V and desire ($\beta = 0.00$, $p = 0.94$, C.I = [-0.03, 0.03]) and (ii) Man_V and boredom ($\beta = 0.00$, $p = 0.94$, C.I = [-0.02, 0.01]). H8 was partially supported.

Additional analysis. We ran Model 3 to assess how involvement with environmental issues and its interaction terms with the modalities influenced the hypothesized relationships by comparing it with Model 1. Model 3 fit the data well ($\chi^2 = 823.31$, $df = 357$, $p < 0.001$; $\chi^2/df = 2.31$; RMSEA = 0.06; CFI = 0.92, TLI = 0.90; SRMR = 0.07). We performed a delta $\Delta\chi^2$ test between Model 1 and Model 3 to test the null hypothesis that the two models were not significantly different from each other. The $\Delta\chi^2$ test was significant ($\Delta\chi^2 = 372.18$, $\Delta df = 84$), with a critical value of 106.40 at the 0.05 significance level, indicating that Model 3 was significantly different from Model 1. As the fit indices of Model 3 were worse than those of Model 1, we considered Model 1 significantly better than Model 3. However, involvement with environmental issues had a significant positive influence on central processing ($\beta = 0.36$, $p < 0.001$), peripheral processing based on attractiveness ($\beta = 0.17$, $p < 0.01$), and peripheral processing based on effortless processing ($\beta = 0.34$, $p < 0.001$), resonating with our MANCOVA results, which indicated the significant main effect of involvement with environmental issues on central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing. The interaction terms, involvement with environmental issues and Man_T ($\beta = -0.06$, $p = 0.32$) and involvement with environmental issues and Man_V ($\beta = -0.04$, $p > 0.51$), did not significantly influence central processing, but involvement with environmental issues and Man_TV ($\beta = -0.14$, $p < 0.01$) did. From the negative significant path coefficient of involvement with environmental issues x Man_TV and central processing, we postulated that a high amount of textual information with visuals reduced involvement with environmental issues' influence on the central processing of the user-centric advertisements; the central processing of the advertisements was encouraged by the strong message argument of the textual and visual cues.

3.1.5. Variance Explained in the Dependent Variables

Approximately 51.0% ($p < 0.001$), 41.3% ($p < 0.001$), 13.1% ($p < 0.001$), 10.4% ($p < 0.001$), 10.9% ($p < 0.01$), and 2.2% ($p > 0.05$) of the variance in purchase intention for sustainable apparel, desire, boredom, central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing, respectively, was explained in Models 1 and 2. Similarly, 51.6% ($p < 0.001$), 42.9% ($p < 0.001$), 14.5% ($p < 0.001$), 27.0% ($p < 0.001$), 15.4% ($p < 0.001$), and 14.5% ($p < 0.001$) of the variance in purchase intention for sustainable apparel, desire, boredom, central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing, respectively, was explained in Model 3. Given that involvement with environmental issues and its interaction terms with the modalities were included in Model 3, we postulated that the incremental variance in central processing, peripheral processing based on attractiveness, and peripheral processing based on effortless processing explained in Model 3 was due

to involvement with environmental issues. Given that the variance in central processing and peripheral processing based on attractiveness was also significant in Models 1 and 2, we postulated that the modalities alone could significantly explain the variance in central processing and peripheral processing based on attractiveness.

4. Discussion

Despite the urgency of protecting the environment, instances of buying environmentally unfriendly apparel prevail due to the barriers toward buying sustainable apparel. Primarily, consumers refrain from buying sustainable apparel due to its higher price [1] and limited styles [1,2]. Clothing is closely linked to aesthetics, self-expression, and presenting oneself as desirable in social settings [1,2]. Since sustainable apparel is perceived as limited in styles, it could be perceived as a hindrance in presenting oneself as socially desirable. Therefore, we contend that if sustainable apparel is advertised as affordable and fashionable, then consumers may appraise sustainable apparel favorably, evoking positive affective responses toward it and positively influencing purchase intentions. In other words, we suggest that user-centric advertisements focusing on how sustainable apparel could meet consumers' concerns could encourage intentions for purchasing sustainable apparel. Based on the theoretical framework of the Elaboration Likelihood Model [8], we proposed and empirically tested a conceptual model delineating the relationship between user-centric advertisement appeals, routes of processing the advertisements, affective responses toward sustainable apparel, and purchase intentions for sustainable apparel. We identified many important theoretical and marketing implications from our results, as described below. Specifically, since the user-centric advertisements explicitly focused on how sustainable apparel would meet consumers' needs instead of only how it would protect the environment, we expected that consumers' engagement with sustainable apparel would increase, positively influencing their favorable experience with sustainable apparel consumption and evoking positive purchase intentions.

4.1. Theoretical Implications

We contributed to the theory building of the Elaboration Likelihood Model [8] in the context of sustainable apparel purchase intentions. Researchers have mentioned that textual cues are processed centrally (i.e., through thoughtful elaborations) among individuals with high issue involvement [17,19], and peripheral cues (e.g., visuals) are processed peripherally (i.e., through automatic and superficial elaborations) among individuals with low issue involvement [8,9,17]. We evinced that irrespective of consumers' level of involvement with environmental issues and the message modalities (textual vs. visual vs. textual and visual), the user-centric advertisements could be processed centrally.

Although sustainable apparel is primarily perceived as pro-environmental [1,2], we evinced that high involvement with environmental issues was not required for the central processing of the user-centric advertisements. Interest in sustainable apparel could be increased by linking consumers' own concerns (e.g., concerns for affordability and social desirability) with sustainable apparel, thereby increasing the central processing of user-centric advertisements.

However, the high level of central processing of the user-centric advertisements did not preclude peripheral processing. Although central processing was more common than peripheral processing when the user-centric advertisements were in the textual modality, peripheral processing also occurred, irrespective of the level of involvement with environmental issues. Similarly, the user-centric advertisements in the textual–visual modality increased central processing, irrespective of the level of involvement with environmental issues, although peripheral processing also occurred. With these findings, we supported the emerging literature in the notion that central processing can occur along with peripheral processing [15,16] and peripheral and central cues together enhance the ability to elaborate messages due to an enhanced level of involvement with the message, leading to central processing [33]. Additionally, given that there was no significant difference in the central

processing of the user-centric advertisements in the textual and textual–visual modalities, we supported the extant literature in the proposition that visuals do not necessarily distract from the textual information but rather enhance the persuasiveness of the message argument [15,16].

We also found that the user-centric advertisements in the visual modality increased central processing when the involvement with environmental issues was high. We supported the literature in the idea that in the absence of central (e.g., textual) cues, self-generated issue-relevant thoughts lead to central processing among individuals who have a high involvement with the issues being processed [30]. Given that the visuals in the user-centric advertisements conveyed consumers' concerns, self-generated issue-relevant thoughts may have been generated (e.g., how the sustainable apparel could be affordable and help in exploring different styles and encouraging self-expression), leading to the central processing of the advertisement. Although the user-centric advertisements in the visual modality increased peripheral processing when the involvement with environmental issues was low, central processing also occurred. Therefore, we emphasize that it is not the modality but rather the self-relevant appeal of the user-centric advertisements that resulted in central processing.

Further, we evinced that the central processing and peripheral processing based on effortless processing of the user-centric advertisements positively influenced favorable affective responses toward sustainable apparel (desire) and negatively influenced unfavorable affective responses toward sustainable apparel (boredom). We supported the extant literature in the argument that a high degree of message elaboration (central processing) results in positive thoughts about the object being evaluated under strong message arguments [24] and self-congruency acts as a peripheral cue in forming attitudes toward a product [30]. Therefore, when consumers see a congruence between their concerns and the concerns communicated through the user-centric advertisement, desire is evoked, and boredom is lowered.

However, peripheral processing based on attractiveness did not evoke any significant affective response toward the sustainable apparel. We postulated that merely making advertisements attractive may not evoke a sense of self-congruency, thereby failing to evoke any affective response toward sustainable apparel. Previously, researchers have mentioned that sustainable apparel is perceived as expensive [1], boring, and unconducive to self-expression and styling [1,2]. We evidenced that the user-centric advertisements highlighting concerns for affordability, self-expression, and style evoked desire and lowered boredom toward sustainable apparel. Therefore, user-centric advertisements could help apparel brands change the notion that sustainable apparel is expensive and boring by evoking desire and lowering boredom toward sustainable apparel. The user-centric advertisements in the textual and visual modalities positively influenced favorable affective responses toward sustainable apparel (desire), but the user-centric advertisement in the textual and visual modality did not. We supported the notion that messages with strong arguments [24] and sensational values [15,16] evoke positive affective responses but contradicted the idea that central and peripheral cues together lead to stronger affective responses than only central cues [15,16]. One possible explanation for this contradiction could be our conceptualization of favorable affective responses toward sustainable apparel as desire; it is possible that the combination of textual and visual messages in the user-centric advertisements evoked an affective response toward sustainable apparel that was different from desire (e.g., satisfaction, excitement) and was not recorded in our study. Further research is required to investigate this aspect.

Central processing mediated the relationship between (i) the user-centric advertisement in the textual modality and affective responses toward sustainable apparel and (ii) the user-centric advertisement in the textual and visual modality and affective responses toward sustainable apparel. Therefore, we explained the mechanism behind the evocation of affective responses toward sustainable apparel and filled important literature gaps; the central processing of the user-centric advertisements in the textual and textual–visual

modalities strengthened desire and weakened boredom. Peripheral processing did not mediate the relationship between the user-centric advertisement in the visual modality and affective responses toward sustainable apparel. One possible explanation for this could be the strong central processing of the user-centric advertisement in the visual modality, due to the high relevance of the user-centric advertisements to the consumers.

We evinced that favorable affective responses toward sustainable apparel (desire) and unfavorable affective responses toward sustainable apparel (boredom) positively and negatively influence purchase intention for sustainable apparel, respectively. Researchers have suggested that a happy state of mind [5] and anticipatory emotions (e.g., pride, guilt) [4] influence pro-environmental intentions. We expanded upon this literature by evincing that when an individual has concerns regarding both the protection of the environment and the satisfaction of non-pro-environmental desires (e.g., the consumption of affordable apparel/self-expression and styling), user-centric advertisements can evoke favorable affective responses toward sustainable apparel (desire), which can translate into purchase intention. The central processing of user-centric advertisements can lower boredom, which can minimize the negative influence of boredom on purchase intentions for sustainable apparel. We linked these findings to the major societal implication of our study—purchase intentions for sustainable apparel could be encouraged without making consumers feel that they are sacrificing their concerns to protect the environment.

4.2. Marketing Implications

We identified many direct marketing implications. First, sustainable apparel brands can encourage purchase intentions for sustainable apparel by using user-centric advertisements. Therefore, sustainable apparel brands and marketers should focus more on communicating how sustainable apparel can meet consumers' needs instead of focusing on environmental cues only. The modality of a user-centric advertisement is not very important, because all three modalities are likely to increase the relevance of sustainable apparel to consumers, due to the user-centric appeals conveyed by the advertisements. Therefore, sustainable apparel brands and marketers should focus on creating persuasive messages delineating the direct benefits of sustainable apparel to the consumer, rather than focusing on whether the message is delivered through textual, visual, or textual and visual modalities. However, with an increase in consumers' degree of involvement with environmental issues, the influence of the amount of textual and visual information on central processing could become attenuated. Therefore, when a brand's target market has high involvement with environmental issues, investing in user-centric advertisements with large amounts of textual and visual information together may not result in extensive elaborations on sustainable apparel. Rather, extensive elaboration on sustainable apparel is primarily influenced by consumers' high involvement in environmental issues. Thus, brands with a target market that is highly involved with environmental issues need to keep this in mind while creating such advertisement messages.

Second, given that extensive elaborations (central processing) on user-centric advertisements evoke favorable affective responses and minimize negative affective responses toward sustainable apparel, sustainable apparel brands should strongly focus on communicating how consumers' concerns could be satisfied through sustainable apparel, rather than asking for self-transcendent behaviors to protect the environment.

Third, adapting Vetta's concept of sustainable apparel capsules (i.e., a certain number of clothing items mixed and matched to create different ensembles) in the user-centric advertisements, we indicated the importance of explicitly showing the ability of sustainable apparel to meet consumers' concerns for affordability, style, and self-expression. Currently, Vetta primarily uses implicit cues (e.g., stating how different styles could be created by certain clothing items without explicitly communicating how this could help save money, aid in self-expression, and protect the environment). As such, despite having a creative way of encouraging sustainable apparel purchase intentions, Vetta is losing opportunities to tap into a wider target audience who place great importance on consuming apparel affordably

and wearing apparel for style and self-expression. For example, if five clothing items can create 20 ensembles, this indirectly saves the monetary equivalent of 15 different ensembles. Stating the dollar amount of such savings could significantly aid in presenting sustainable apparel as affordable in the long term even if the individual clothing items appear expensive in the short term. We emphasize the importance of explicitly mentioning how sustainable apparel could meet consumers' concerns by using textual and textual–visual cues. Therefore, sustainable apparel brands and marketers should use user-centric advertisements to explicitly mention the direct benefits of buying sustainable apparel, instead of relying on consumers' willingness to engage in extensive thinking about sustainable apparel (e.g., how sustainable apparel meets their needs) from implicit cues presented in sustainable apparel advertisements.

Another way to encourage consumers to buy sustainable apparel could be increasing purchase intentions for used/rented apparel. Buying used apparel or renting apparel could be inexpensive, thereby meeting consumers' needs for affordable apparel. However, the literature states that wearing used/recycled apparel often creates a sense of social disapproval [2]. In such cases, sustainable apparel brands and marketers could share testimonials of consumers who have faced social disapproval for trying to protect the environment by wearing used/recycled apparel or renting apparel. Such testimonials shared on social media may in turn evoke a sense of guilt among the individuals who disproved of consuming used/recycled apparel or renting apparel to protect the environment. Because guilt for not consuming sustainable products can evoke future intentions for purchasing sustainable products [5], such testimonials could also positively influence intentions for purchasing sustainable apparel. In the long run, such testimonials may help attenuate the stigma associated with buying used/recycled apparel or rented apparel and aid in protecting the environment.

Depending upon the target market, consumers' concerns for apparel consumption could vary. As such, marketers should identify the other competing needs that their target market may have and communicate through user-centric advertisements how sustainable apparel could meet those concerns. Since there were no significant differences in the purchase intentions for sustainable apparel between the different modalities of the user-centric advertisements (i.e., textual, visual, and textual–visual), sustainable apparel brands should explore other modalities (e.g., audio, audio–visual) through which to present user-centric advertisements.

5. Conclusions and Future Scope of Research

In this research, we offered empirical support for the importance of user-centric advertisements in encouraging purchase intentions for sustainable apparel by portraying sustainable apparel as meaningful for consumers' concerns regarding affordability, social desirability, and environment protection. We suggested that instead of focusing on the pro-environmental cues only, sustainable apparel brands should integrate consumers' concerns in the advertisements to communicate how sustainable apparel could be relevant for consumers, irrespective of their involvement with environmental issues. We also suggested that stronger favorable affective responses and weaker unfavorable affective responses toward sustainable apparel after exposure to user-centric advertisements are instrumental in encouraging purchase intentions for sustainable apparel.

In the future, researchers should explore how different levels of arousal can influence the purchase intentions for sustainable apparel after controlling for the effects of affective responses. According to their level of arousal, consumers may appraise user-centric advertisements differently depending upon the amount of information presented and the modality of the advertisements. Therefore, it would be interesting to explore the interaction effect of the level of arousal, the information overload, and the modality of the user-centric advertisement on influencing the purchase intentions for sustainable apparel. Researchers could also explore other competing concerns that influence purchase intentions for sustainable apparel among consumers from different demographic, psychographic, and

geographic backgrounds. It would be interesting to explore how user-centric advertisements could be customized according to the specific concerns of consumers from different socio-economic and cultural backgrounds. Furthermore, in our current study, we conceptualized favorable and unfavorable affective responses in terms of desire and boredom, respectively. It would be worthwhile to explore how different classes of affective responses (e.g., satisfaction, pride) could be evoked as a function of the specific type of sustainable apparel appraisal (e.g., appraising sustainable apparel as affordable) after consumers are exposed to user-centric advertisements. Furthermore, we did not test the influence of guilt on purchase intentions for sustainable apparel, which has been suggested to be an important factor in influencing intentions for purchasing sustainable products [5]. Future research could explore the influence of guilt and other negative emotions on purchase intentions for sustainable apparel.

Despite our important conclusions, this study had certain limitations. The non-random sample selection of female millennials in the U.S reduced the generalizability of the findings. Additionally, we created and used user-centric advertisements for a fictitious brand, thereby losing realism and generalizability in the context of real-world advertisements. Therefore, further research is required to test the generalizability of our conceptual model in the context of (i) consumers from both genders, other generational cohorts, and countries of residence and (ii) real-world advertisements, after controlling for the potential confounding effects of brand familiarity. Moreover, in the user-centric advertisements implemented in the present study, we included the concept of saving money as a proxy for affordability. However, perceptions about saving money could be different from perceptions about affordability. In the future, researchers may explore ways to capture the nuances of affordability in user-centric advertisements. Because the modalities of the user-centric advertisements were directly related to the hypothesis testing, we successfully performed a manipulation check for the advertisement modalities. However, we did not perform a manipulation check for the advertisement appeals in terms of the concerns for affordability, social desirability, and environmental protection. In the future, manipulation checks should be performed for the advertisement appeals in addition to the advertisement modalities in order to enhance the internal validity of the findings.

Appendix A

Figure A1. Example of user-centric advertisement in textual and visual modality.

Figure A2. Example of user-centric advertisement in textual modality.

Figure A3. Example of user-centric advertisement in visual modality.

Appendix B

Table A1. Manipulation check results for stimuli from the pre-test.

DV	Stimuli	Descriptives			ANOVA		Multiple Comparison	
		n	*M*	*SD*	*F*	*p*	**Mean Difference**	*p*
I think that the advertisement message is primarily conveyed through visuals.	Visual	133	6.14	1.22	140.28	0.00	**3.06 (M_V-M_T)**	**0.00**
							1.02 (M_V-M_{TV})	**0.00**
	Textual	132	3.08	1.80			−3.06 (M_T-M_V)	0.00
							−2.04 (M_T-M_{TV})	0.00
	Visual and textual	143	5.12	1.47			2.04 (M_{TV}-M_T)	0.00
							−1.02 (M_{TV}-M_V)	0.00
I think that the advertisement message is primarily conveyed through textual information.	Visual	133	2.44	1.55	142.35	0.00	−3.22 (M_V-M_T)	0.00
							−2.03 (M_V-M_{TV})	0.00
	Textual	132	5.66	1.66			**3.22 (M_T-M_V)**	**0.00**
							1.19 (M_T-M_{TV})	**0.00**
	Visual and textual	143	4.47	1.50			−1.19 (M_{TV}-M_T)	0.00
							2.03 (M_{TV}-M_V)	0.00
I think that the advertisement message is primarily conveyed through both visual and textual information.	Visual	133	3.59	1.66	58.56	0.00	−0.22 (M_V-M_T)	0.76
							−1.90 (M_V-M_{TV})	0.00
	Textual	132	3.82	1.71			0.22 (M_T-M_V)	0.76
							−1.67 (M_T-M_{TV})	0.00
	Visual and textual	143	5.49	1.43			**1.67 (M_{TV}-M_T)**	**0.00**
							1.90 (M_{TV}-M_V)	**0.00**

Table A2. Manipulation check results for the stimuli from the main study.

DV	Stimuli	Descriptives			ANOVA		Multiple Comparison	
		n	*M*	*SD*	*F*	*p*	**Mean Difference**	*p*
I think that the advertisement message is primarily conveyed through visuals.	Visual	117	5.95	1.22	88.18	0.00	**2.56 (M_V-M_T)**	**0.00**
							1.11 (M_V-M_{TV})	**0.00**
	Textual	117	3.39	1.69			−2.56 (M_T-M_V)	0.00
							−1.44 (M_T-M_{TV})	0.00
	Visual and textual	110	4.84	1.48			1.44 (M_{TV}-M_T)	0.00
							−1.11 (M_{TV}-M_V)	0.00
I think that the advertisement message is primarily conveyed through textual information.	Visual	117	2.97	1.85	83.76	0.00	−2.70 (M_V-M_T)	0.00
							−1.16 (M_V-M_{TV})	0.00
	Textual	117	5.67	1.26			**2.70 (M_T-M_V)**	**0.00**
							1.54 (M_T-M_{TV})	**0.00**
	Visual and textual	110	4.13	1.64			−1.54 (M_{TV}-M_T)	0.00
							1.16 (M_{TV}-M_V)	0.00
I think that the advertisement message is primarily conveyed through both visual and textual information.	Visual	117	3.68	1.81	36.17	0.00	−0.44 (M_V-M_T)	0.13
							−1.78 (M_V-M_{TV})	0.00
	Textual	117	4.12	1.70			0.44 (M_T-M_V)	0.13
							−1.34 (M_T-M_{TV})	0.00
	Visual and textual	110	5.46	1.34			**1.34 (M_{TV}-M_T)**	**0.00**
							1.78 (M_{TV}-M_V)	**0.00**

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