Consumer preference and apparel products: investigating the role of the Centrality of Visual Product Aesthetics concept

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Abstract:

Despite academic interest in the Centrality of Visual Product Aesthetics (CVPA) construct, studies are needed that further explore the importance that specific visual aesthetic properties of apparel holds for consumers. Based on the two-factor theory called the Most Advanced, Yet Acceptable principle (MAYA principle), this study empirically examines the influence of the CVPA on aesthetic preference relative to apparel products. As most studies exploring the MAYA principle have relied on a repeated-measures design, an experimental between-subjects design was employed. By using stimuli of apparel products with various levels of typicality and novelty, the influence of individual differences measured by the CVPA in aesthetic response was investigated. Results suggest that while the MAYA principle holds for the evaluation of the tested products, the CVPA does not moderate their evaluation. Findings also identify product attributes that further clarify the properties of typicality and novelty in the tested products.

Keywords: preference | typicality | novelty | aesthetics | MAYA

Article:

1. Introduction

Product appearance relates to the aesthetic product value that consumers assess during the perception process (Creusen & Schoormans, Citation2005). However, when a consumer encounters a product, the outcome of this human-product interaction will be determined not just by the characteristics of the product itself, but by the consumer's perceptions of and experiences with it. This outcome is largely dependent on the dispositional characteristics that the individual consumer brings to the interaction (Desmet & Hekkert, Citation2007), hence the importance of considering consumer characteristics when studying aesthetic phenomena, including that of product design (Fiore, Moreno, & Kimle, Citation1996). One consumer characteristic that has gained a great deal of consideration in academic research is known as the Centrality of Visual Product Aesthetics (CVPA), which is 'the level of significance that visual aesthetics holds for a

particular consumer' in his or her interactions with products (Bloch, Brunel, & Arnold, Citation2003, p. 552). Due to the relevance of the CVPA concept to product design, studies are needed to further explore the importance that specific visual aesthetic properties hold for consumers.

Visual properties of products are critical in determining product preference because vision is the most dominant of the senses (Hekkert & Leder, Citation2008). Consequently, consumers' decisions related to the selection of apparel products by their visual aesthetic product properties are pertinent, and notably so in the online environment. Global Internet retailing, including apparel categories in the U.S., is forecasted to continue increasing because the COVID-19 pandemic has generated new emerging trends, such as consumers considering 'e-commerce as a default setting' (Euromonitor, Citation2020, p. 7). Therefore, taking into account consumers' preferences based on the visual aspects of apparel are essential, now more than ever, during the process of apparel design.

Although the importance of apparel online sales and the applicability of aesthetics for both practice and academe are growing, product aesthetics research is usually focused on consumer products like teakettles (e.g. Hekkert, Snelders, & van Wieringen, Citation2003), while disregarding other high-sale products, such as apparel. Likewise, though research has investigated the CVPA concept relative to product design in general, few studies have focused on apparel products. Further, prior research on product aesthetics emphasises variations on the part of products, yet little research focuses on variations on the part of the consumer (Hutchinson, Citation2008). Moreover, limited studies have addressed both aesthetic properties of typicality and novelty, while also considering variations of consumer characteristics.

To address these gaps, it is important to focus on certain aesthetic properties when considering the CVPA construct for exploring why individuals prefer specific products. Consequently, based on the two-factor theory called the Most Advanced, Yet Acceptable principle (MAYA principle) (Hekkert et al., Citation2003), the specific properties of interest are typicality and novelty. Findings shed light on psychological factors affecting the consumer, thereby providing insight into individual differences in aesthetic response (Fiore et al., Citation1996).

2. Literature review

2.1. The Most Advanced, Yet Acceptable principle (MAYA principle)

Whitfield and Slatter (Citation1979) proposed the preference-for-prototypes theory that explains the existing direct relationship between categorisation and typicality and product preference. The authors argued that categorisation comprises the classification of stimuli (e.g. products) as equivalent or similar, in which the one stimulus that better fits the abstract image that represents the category in the consumers' minds is called a 'prototype.' Preference for stimuli similar to the prototype indicates that consumers feel comfortable with it as it is easier to categorise among several stimuli (Hekkert et al., Citation2003). However, most studies that employ the theory have not considered the opposite situation, wherein consumers prefer products that are novel and different from the prototype.

Drawing from the inherent contradiction found in the preference-for-prototypes theory, the MAYA principle, initially coined by Loewy (Citation1951), posited that not only typicality, but also novelty, are the independent variables influencing the aesthetic preference for products. This principle is a method to determine the most commercially viable product, in that a successful

product needs to be simultaneously perceived as having a certain degree of 'familiarity,' as well as a certain degree of 'originality' (Lidwell, Holden, Butler, & Elam, Citation2010, p. 162). It can be simply explained as 'something old, something new' (Leder, Citation2011, p. 45). Because the principle is connected to the psychological predisposition of individuals to avoid extremes (Berlyne, Citation1971), it extends to various fields and products.

Berlyne (Citation1971) clarifies that in two-factor theories, such as the MAYA principle, 'beauty or aesthetic pleasure have focused on the necessity of equilibrium between two mutually counterbalancing factors' (p. 125). This means that the factors of typicality and novelty are inherently related but conceptually different. They can even be considered opposites on a continuum (Hekkert, Citation2006; Hekkert et al., Citation2003). However, Hung and Chen (Citation2012) operationalised a bipolar typicality/novelty scale and found that it was not adequate for distinguishing all possible levels of typicality/novelty, concluding, 'it is necessary to treat typicality and novelty as independent factors' (p. 88). However, both typicality and novelty are classified as meaningful properties, which are subjective evaluations of how individuals perceive products (Hekkert & Leder, Citation2008); or collative properties, in that the individual 'must compare or collate information from two or more sources [or expectations] to decide how novel, (…) typical, and so on, a pattern is' (Berlyne, Citation1971, p. 69).

As per literature on product design, Typicality is defined as 'goodness-of-example' in that an individual compares a product and concludes that the product is perceived as typical or familiar because it is evaluated as being similar to the prototype (Whitfield & Slatter, Citation1979). As for Novelty, the cognitive evaluation of the product involves a visual comparison related to how 'original' (Hekkert et al., Citation2003) and 'new' (Radford & Bloch, Citation2011) the product is perceived to be against other products that have been seen before.

2.2. Aesthetic preference and the Centrality of Visual Product Aesthetics (CVPA)

The aesthetic preference is an aesthetic judgment based on the recognition of product structures, order, or coherence (Desmet & Hekkert, Citation2007), as well as the implicit memory integration related to previous experiences (Leder & Nadal, Citation2014). Berlyne (Citation1971) supports the effect of individual differences (e.g. taste, sensibility) on product preference. Therefore, beauty as a source of value is perceived differently not only because of the properties of product designs but per individual consumer differences, such as those measured in the CVPA (Hassenzahl, Citation2008). Bloch et al. (Citation2003) presented the CVPA construct as the level of response a consumer places on visual aesthetics when he or she relates to products. Thus, it relates to the psychological factors affecting the appreciator's aesthetic ability, as well as the selection, preference, and evaluation of objects (Fiore et al., Citation1996).

Because design principles are guidelines to evaluate product designs as good or bad (Lidwell et al., Citation2010), considering a design principle may be useful in determining superior design, which is what is most valued by high CVPA consumers (Bloch et al., Citation2003). It is important to note that when Bloch et al. (Citation2003) developed the CVPA scale, the authors determined discrimination using conceptually-related constructs, such as the Desire for Unique Consumer Products (DUCP) scale (Lynn & Harris, Citation1997), and consumer materialism (Richins & Dawson, Citation1992).

2.3. Conceptual model and hypotheses development

The model illustrated in Figure 1 proposes that when a consumer interacts with a product (e.g. browsing online), the aesthetic properties of the product have the capacity to generate a response in the consumer, such as an aesthetic preference. Based on the MAYA principle (Hekkert et al., Citation2003), the aesthetic preference is influenced by the effects of the visual product properties of typicality and novelty, and can be modified by certain consumer characteristics, such as those measured in the CVPA construct. The relationships (Hypotheses 1–6) derived from the model are discussed below.
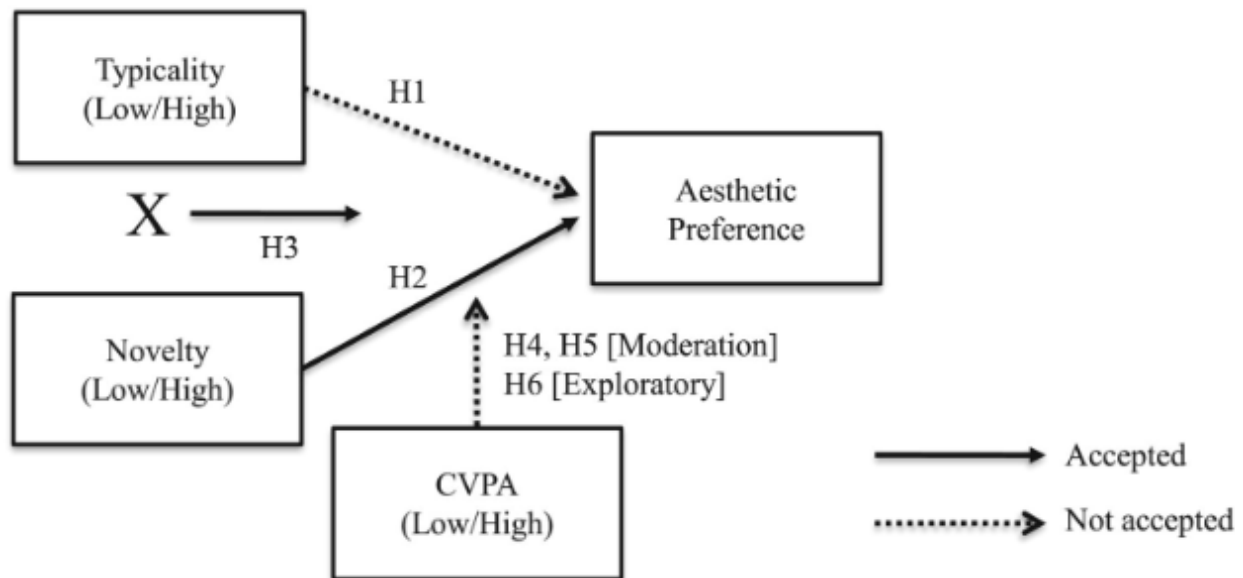

Figure 1. Conceptual Model. Dependent variable: Aesthetic Preference.

2.3.1. The main effect of typicality

Products that are perceived as being closer to the prototype are likely to be preferred (Whitfield & Slatter, Citation1979). This idea also applies for apparel, as consumer response is influenced by product property configurations seen before (DeLong, Minshall, & Larntz, Citation1986). As typicality refers to stimuli being perceived as familiar, comfortable, and easy to classify (Hekkert et al., Citation2003), aesthetic preferences are affected by this aesthetic property (Leder, Belke, Oeberst, & Augustin, Citation2004). That is, typicality drives aesthetic preference (Vartanian, Citation2014). For these reasons, it is expected that:

> H1: There will be a positive relation between typicality and aesthetic preference. That is, products perceived as being more typical will have higher evaluations of aesthetic preference than products perceived as being less typical.

2.3.2. The main effect of novelty

Consumers have an internal desire for what is perceived as unfamiliar, new, or novel (Hirschman, Citation1980) because novel products involve a challenge and tend to elicit interest in knowing

more about the product (Desmet, Citation2003). Thus, novelty is a driver of aesthetic preference (Berlyne, Citation1971; Radford & Bloch, Citation2011), product sales (Cooper & Kleinschmidt, Citation1987), and apparel purchases (Dhurup, Citation2014). Therefore, it is hypothesised that:

> H2: There will be a positive relationship between novelty and aesthetic preference. That is, products perceived as being more novel will elicit higher evaluations of aesthetic preference than products perceived as being less novel.

2.3.3. The two-way interaction effect of typicality and novelty

Aesthetic properties, such as typicality and novelty, act as independent variables that cause preference in perceivers (Vartanian, Citation2014). When testing these effects, typicality and novelty 'are equally effective in explaining aesthetic preference … but they suppress each other's effects' (Hekkert et al., Citation2003, p. 111). In other words, the two main fixed effects of typicality and novelty are the primary source of variation of the aesthetic preference, and therefore, both treatment factors generate an interaction effect. As experimental results suggest that the MAYA principle holds for various products (Diels, Siamatas, & Johnson, Citation2013; Hekkert et al., Citation2003; Tractinsky, Abdu, Forlizzi, & Seder, Citation2011), it is likely that the following logic will also hold for apparel products,

> H3: There will be a two-way interaction between typicality and novelty. That is, products perceived as less typical, but more novel have a lower influence on consumers' aesthetic preferences when contrasted with products perceived as less typical and less novel. In the same way, products perceived as more typical and more novel have a greater influence on consumers' aesthetic preferences when contrasted with products perceived as more typical but less novel.

2.3.4. The two-way interaction effect of typicality and CVPA

Bloch et al. (Citation2003) postulates that consumers with low CVPA place little importance on design, preferring products that are more generic. These consumers are then more likely to prefer products that are closer to the prototypes or exhibit high typicality. One dimension of CVPA is the ability of the consumer to categorise and classify product designs based on aesthetics (Bloch et al., Citation2003) because consumers tend to categorise by product appearance (Creusen & Schoormans, Citation2005; Whitfield & Slatter, Citation1979). As per Whitfield and Slatter (Citation1979), it is predictable that consumers with different levels of CVPA will categorise and then prefer products differently, in that consumers with low CVPA will prefer products that are equivalent to the prototype, while consumers with high CVPA will prefer products that are perceived to be different from the prototype. Thus, it is expected that consumers with different levels of CVPA will categorise and then prefer products differently,

> H4: There will be a two-way interaction effect of typicality and CVPA, in which consumers with low CVPA will rate the aesthetic preference of more typical products higher relative to consumers with high CVPA who will rate the aesthetic preference higher of products perceived as less typical.

2.3.5. The two-way interaction effect of novelty and CVPA

Bloch et al. (Citation2003) posits that consumers with high CVPA are inclined to surround themselves with products that are beautiful and prefer products that are rich and unique in design features (high novelty). Likewise, there is a positive correlation between CVPA scores with the consumers' need for uniqueness, therefore innovators and opinion leaders are generally consumers with high CVPA scores (Workman & Caldwell, Citation2007). Thus, it is expected that consumers with high CVPA will prefer products that are perceived as novel,

> H5: There will be a two-way interaction effect of novelty and CVPA, in which consumers with low CVPA will rate the aesthetic preference of less novel products higher relative to consumers with high CVPA who will rate the aesthetic preference higher of products perceived as more novel.

2.3.6. The three-way interaction effect of typicality, novelty, and CVPA

As per Bloch et al. (Citation2003), different levels of CVPA in individuals may imply that consumers are attracted to products based on a different balance between novelty, high aesthetic content, and typicality, products that can be easily categorised. However, 'different consumers place different weights on design characteristics that evoke stereotypicality versus novelty' because of differences in CVPA (Brunel & Swain, Citation2008, p. 143). Hence, it is expected that,

> H6$_{Exploratory}$: There will be a three-way interaction effect of typicality, novelty, and CVPA.

3. Methodology

A 2 (typicality: low vs. high) × 2 (novelty: low vs. high) × 2 (CVPA: low vs. high) between-subjects experimental design was conducted. Typicality (Typ) and Novelty (Nov) were fixed factors manipulated at low (LowTyp/LowNov) and high (HighTyp/HighNov) levels. The CVPA score rating provided by the respondent when filling out the survey allowed for the later classification of each respondent as having a low/high CVPA. Low CVPA levels were determined by mean values lower than 4. Respondents were randomly assigned to scenarios (Table 1) with a single stimulus from Cell 1$_{(LowTyp/LowNov)}$, Cell 2$_{(LowTyp/HighNov)}$, Cell 3$_{(HighTyp/LowNov)}$, or Cell 4$_{(HighTyp/HighNov)}$.

A survey was designed in Qualtrics, an online survey tool, and distributed via TurkPrime, Amazon's website for participant recruitment. Respondents received compensation of between 20 and 50 cents for completed surveys. By randomly allocating participants to independent conditions (Cell 1–4), the factorial design in this study not only avoids order effects of repeated measures but is also 'necessary when interactions may be present to avoid misleading conclusions' (Montgomery, Citation2013, p. 187). Moreover, because most studies testing the MAYA principle (e.g. Diels et al., Citation2013; Hung & Chen, Citation2012; Hekkert et al., Citation2003) utilise within-subjects experimental design (with repeated observations), implementing a between-subjects experimental design (with independent observations) in the present study offers a means of testing the principle that contributes to the further understanding of it.

Table 1. Experiment Scenarios

Scenario	Cell[a]	Manipulated Variables			Frequency of Usable Responses	%
		Typicality	Novelty	CVPA[b]		
1	Cell 1	Low	Low	Low	14	4.40
2	Cell 1	Low	Low	High	55	17.10
3	Cell 2	Low	High	Low	15	4.70
4	Cell 2	Low	High	High	52	16.20
5	Cell 3	High	Low	Low	17	5.30
6	Cell 3	High	Low	High	72	22.40
7	Cell 4	High	High	Low	16	5.00
8	Cell 4	High	High	High	80	24.90
Total					321	100.00

a Cell 1(LowTyp/LowNov), Cell 2(LowTyp/HighNov), Cell 3(HighTyp/LowNov), and Cell 4(HighTyp/HighNov).
b CVPA: Centrality of Visual Product Aesthetics.

3.1. Instrument

After the IRB consent, the survey started by asking the respondent for demographic questions. Then, Qualtrics randomly presented one of the four stimuli (Cell 1, 2, 3 or 4). Next, the respondent was asked to measure the aesthetic preference of the stimulus on a 4-item scale adopted from Hirschman (Citation1986) and Pol (Citation2013): 'Attractive,' 'Appealing,' 'Beautiful,' and 'I like this product.' The scale ranged from (1) 'Not at all' to (7) 'Very strongly.' Then, Bloch et al.'s (Citation2003) 11-item scale to assess the CVPA, with items such as 'Owning products that have superior designs makes me feel good about myself,' was included. The scale ranged from (1) 'Strongly disagree' to (7) 'Strongly agree.' Next, the survey provided a clarification of typicality and novelty, and then, asked: What is the first image that comes to mind when you think of a 'Shirt'? Five shirt prototypes (drawings) were shown, which were created and selected in a series of preliminary experiments for determining shirt prototypes. Then, the survey asked the respondent to select the one drawing that was closest to the shirt in their minds.

The survey showed again the same product picture of the stimulus presented at the beginning of the survey. The manipulation checks assessed both typicality and novelty with a single-item scale adopted from Radford and Bloch (Citation2011). Typicality options ranged from 'Looks very different from the most typical shirt' (1) to 'Looks very much like the most typical shirt' (7). Novelty answers ranged from 'Not novel' (1) to 'Novel' (7). After completing the survey, a TurkPrime compensation code was generated.

3.2. Stimuli

The stimuli of this study consisted of pictures of apparel products. Shirts were chosen among various options of apparel categories, as the MAYA principle was found to drive the aesthetic preference for shirts in a preliminary study. To generate the experimental stimuli, 14 pictures were preselected based on the protocol for stimuli selection used by Whitfield and Slatter (Citation1979). Thus, the photos were high-resolution pictures selected from different fashion websites that were complete, on a white background, and without the body form (2D exhibition). Per Farnand (Citation2013), pictures were then modified in Photoshop to achieve consistency. For accessing a detailed data summary of the stimuli tested, please refer to the supplemental data.

The 14 pictures were pre-tested with 215 completed responses collected in TurkPrime (10–34 responses per picture). Respondents were compensated between 15 and 35 cents. Low levels of typicality and novelty of the tested pictures were estimated with mean values below the median of 3.5, which is the centre value of the 7-point scale. Out of the 14 pretested pictures, four pictures were selected as stimuli. Picture No. 1 was chosen for Cell $1_{(LowTyp/LowNov)}$ because its means indicated low typicality ($M = 3.10 < 3.5$) and low novelty ($M = 2.40 < 3.5$). Picture No. 2 was chosen for Cell $2_{(LowTyp/HighNov)}$ because its scores indicated low typicality ($M = 1.30 < 3.5$) and high novelty ($M = 6.40 > 3.5$). Picture No. 3 was chosen for Cell $3_{(HighTyp/LowNov)}$ because it was rated as having high typicality ($M = 4.50 > 3.5$) and low novelty ($M = 2.70 < 3.5$). Finally, Picture No. 13 was selected for Cell $4_{(HighTyp/HighNov)}$ because its scores indicated high typicality ($M = 4.60 > 3.5$) and high novelty ($M = 4.50 > 3.5$).

4. Results and Discussion

Data collected consisted of 338 usable responses, which excluded incomplete questionnaires and pre-test respondents. A visual inspection of q-q plots and histograms verified univariate normality. Assessment of skewness and kurtosis were rendered acceptable as both values were between +1/-1 and not greater than 2xSE (2xStandard Error) (Hair, Black, Babin, & Anderson, Citation2013). The skewness measure of .58 (SE = .13) was less than .26; while the kurtosis measure of −1 (SE = .26) was less than .52. The Mahalanobis D2 assessed using $p < .05$ allowed for the identification and exclusion of 15 outliers (Hair et al., Citation2013) to improve the quality and trustworthiness of data (DeSimone, Harms, & DeSimone, Citation2015) and confirm the ANOVA assumption of no significant outliers.

4.1. Sample characteristics

The final sample ($n = 321$) consisted of American females between 20 and 73 years old and a mean age of 38. Most respondents were in the 26–45 age range ($n = 182$, 56.70%). The majority were White ($n = 234$, 72.90%) followed by African American or Black ($n = 33$, 10.30%). Most respondents indicated being employed or self-employed ($n = 239$, 74.45%) and having yearly earnings of \$20,000-\$74,900 ($n = 214$, 66.60%). Their yearly household income was \$35,000-\$54,999 ($n = 81$, 25.20%), followed by \$20,000-\$34,999 ($n = 70$, 21.80%) and \$55,000-\$74,999 ($n = 63$, 19.60%). A detailed account of the respondent characteristics can be found in supplemental data.

4.2. Preliminary analyses

Manipulation checks were performed again to assess whether the stimuli's levels of typicality and novelty were reported by respondents in the final sample as they were initially intended in the experimental design. In Table 2, for example, the columns titled 'cell goal,' indicate that the design needed a stimulus in Cell 3 with high typicality and low novelty. The columns titled 'rating level' present the respondents' mean evaluation of the stimulus in Cell 3 that resulted in high typicality ($M = 4.92 > 3.5$) and low novelty ($M = 2.15 < 3.5$). Accordingly, respondents classified Cell 3 as attaining the same levels of typicality and novelty that were originally proposed for that cell. In general, manipulations were successful for Cell 2(LowTyp/HighNov), Cell 3(HighTyp/LowNov),

and Cell 4(HighTyp/HighNov). However, Cell 1(LowTyp/LowNov) was only partially successful; it was only successful for novelty.

Additional tests were run to verify that data collected would reflect the initially intended levels in the Cell 1 despite its partially successful manipulation. ANOVAs were conducted between the typicality ratings of Cell 1 (LowTyp) vs. Cells 3 and 4 (HighTyp). Overall F tests were significant, indicating strong evidence that the typicality means are different for Cells 1 and 3 ($F(1,320) = 11.54$, $p < .001$), as well as for Cells 1 and 4 ($F(1,320) = 3.85$, $p < .05$). As the typicality rating reported for Cell 1 is significantly lower than those reported for Cells 3 and 4, it is safe to classify Cell 1 as low typicality.

As seen in Table 1, a greater number of respondents reported higher versus lower levels of CVPA resulting in unequal sample sizes varying between 14 and 80 responses per scenario. However, sample sizes per cell reported a better distribution and varied between 67 (Cell 2) and 96 responses (Cell 4). Reliabilities of major constructs were also assessed before hypotheses testing. Exploratory factor analyses for aesthetic preference and CVPA indicated unidimensionality of constructs with a Cronbach's Alpha higher than .89. Thus, all major constructs indicated acceptable reliability values greater than .70 (Hair et al., Citation2013). Finally, out of the five prototype drawings, the majority of respondents indicated the Drawing No. 2(short sleeve V-neck t-shirt) as the mode for the shirt prototype ($n = 86$, 26.8%), followed by the Drawing No. 4(long sleeve hidden button-down shirt) ($n = 83$, 25.90%), and the Drawing No. 3(short sleeve crewneck t-shirt) ($n = 67$, 20.90%).

4.3. Results and discussion

Because the data were unbalanced, a $2 \times 2 \times 2$ ANOVA analysis was performed in SAS 94 (The GLM Procedure, Citation2008). The independent variables of typicality, novelty, and CVPA were categorical and the dependent variable of aesthetic preference was continuous. No post hoc tests were needed as there are only two groups per main effect (Montgomery, Citation2013). An unbalanced ANOVA presented the overall F test as significant ($F(7,320) = 4.78$, $p < .001$), indicating that the eight scenarios had different means. The root mean square error (RMSE) of 1.38 explains the standard deviation of the prediction errors. The proportion of the variance explained by the independent and dependent variables indicated by R-Squared (R2) is 9.6%. The differences among the eight scenarios and between all experimental factors are further analysed in Table 3, which includes the Type III Sums of Squares needed for testing unbalanced data effects. A Kruskal–Wallis H test additionally denoted a statistically significant difference in aesthetic preference rating between the different cell treatments ($\chi^2_{(3)}=23.17$, $p = 0.00$) with a mean rank cell score of 200.88 for Cell 1, 124.72 for Cell 2, 157.60 for Cell 3, and 160.81 for Cell 4. Figure 2 presents the interaction plots and Figure 3 the aesthetic preference results per cell and CVPA level.

Surprisingly, results in Table 3 indicate that participants did not report a significant difference in aesthetic preference based on the main effect of typicality ($M_{LowTyp} = 3.33 > M_{HigTyp} = 3.29$, $F(1,320) = .03$, $p = .85$); while preferring products with the lowest typicality. Nevertheless, participants reported a near-marginal significantly different aesthetic preference based on the main effect of novelty ($M_{LowNov} = 3.53 > M_{HighNov} = 3.08$, $F(1,320) = 3.29$, $p = .07$), with a preference for lower levels of novelty. As expected, the typicality × novelty interaction (H3) is significant ($F(1,320) = 11.61$, $p < .001$). As seen in Figure 2(a), the lines of 'LOW novelty' and 'HIGH novelty' intersect. Therefore, H3 was supported.
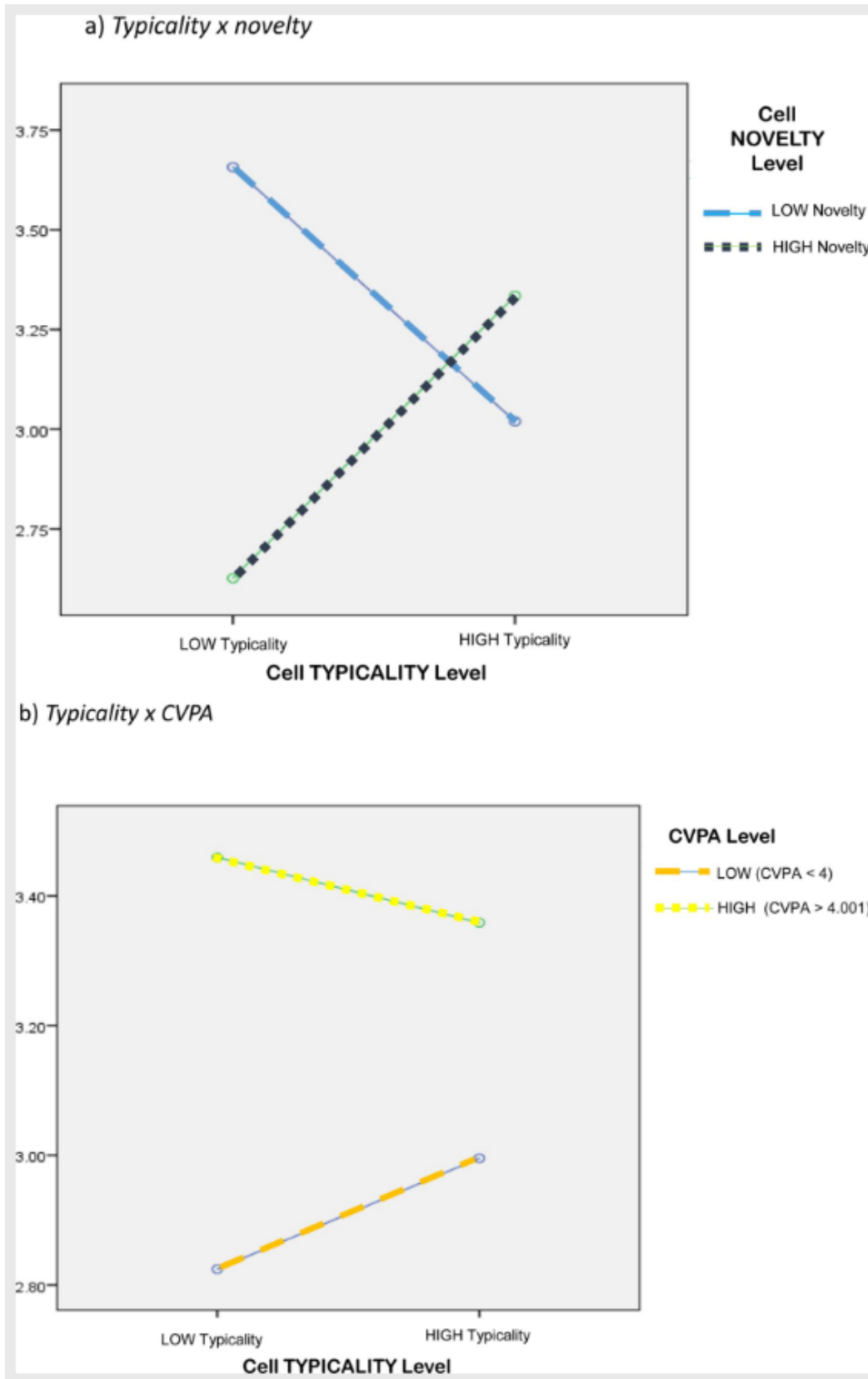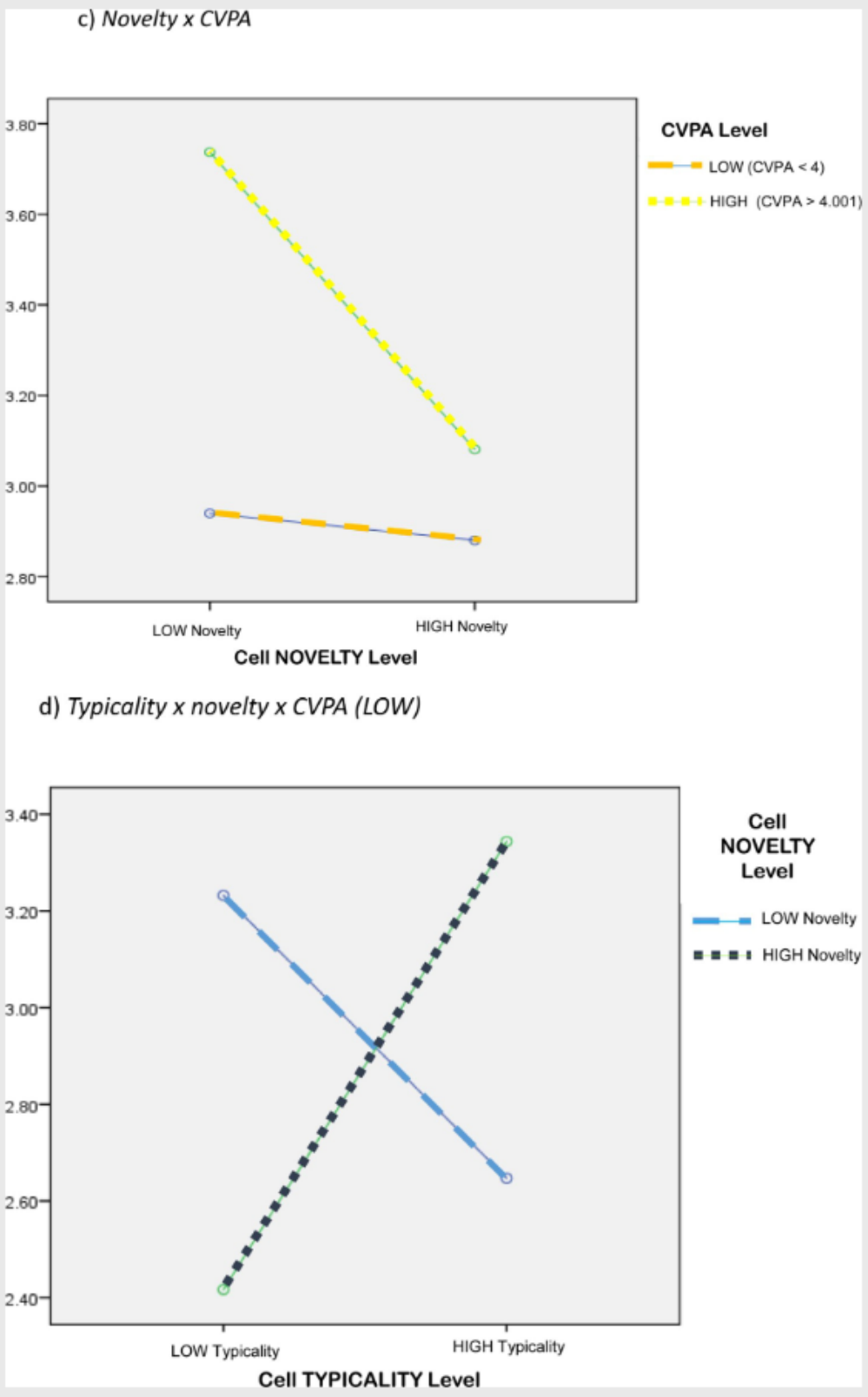
Figure 2. Interaction Plots.

c) *Novelty x CVPA*
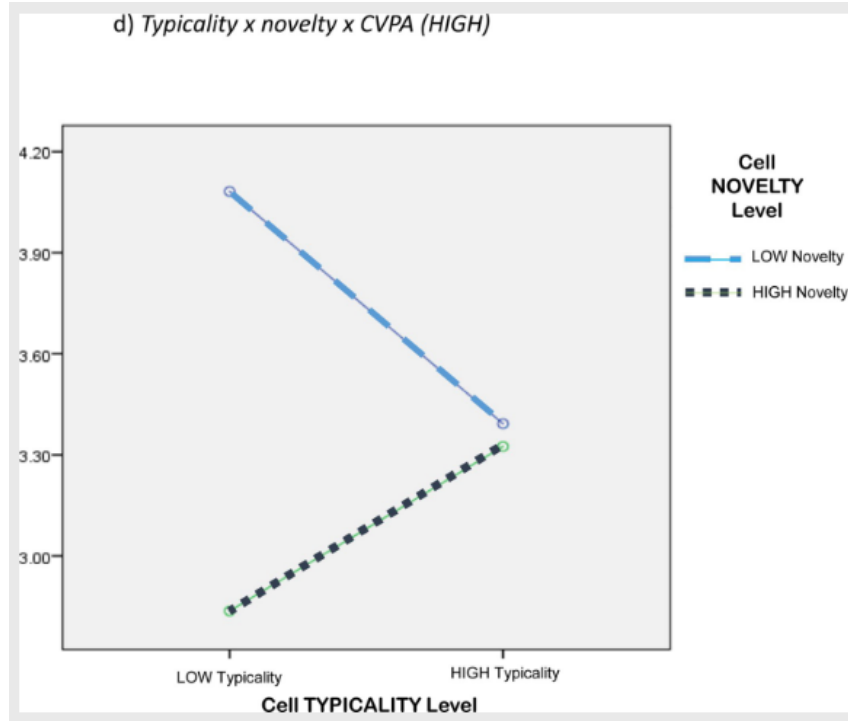

d) *Typicality x novelty x CVPA (LOW)*

Figure 2. *(continued)*

d) *Typicality x novelty x CVPA (HIGH)*

Figure 2. *(continued)*

Figure 3. Aesthetic Preference by Typicality/Novelty (Cells 1–4) and CVPA Level. Notes: Pictures of stimuli of cells have no copyrights. Contact corresponding author for actual stimuli.

Table 2. Manipulation Checks (n = 321).

Cell[a]	TYPICALITY						NOVELTY					
	Cell goal	Mean	n	SD	Rating level	Success in manipulation?	Cell goal	Mean	n	SD	Rating level	Success in manipulation?
1	**Low**	3.81	69	1.93	High	No	**Low**	3.45	69	1.79	Low	Yes
2	**Low**	1.75	67	1.44	Low	Yes	**High**	6.03	67	1.47	High	Yes
3	**High**	4.92	89	2.11	High	Yes	**Low**	2.15	89	1.70	Low	Yes
4	**High**	4.39	96	1.70	High	Yes	**High**	4.22	96	1.69	High	Yes

a Cell 1$_{(LowTyp/LowNov)}$, Cell 2$_{(LowTyp/HighNov)}$, Cell 3$_{(HighTyp/LowNov)}$, and Cell 4$_{(HighTyp/HighNov)}$.

Table 3. Aesthetic Preference ANOVA Results.

	df	Type III Sums of Squares	Mean Square	F-Value	Pr > F
Typicality	1	0.06	0.06	0.03	0.85
Novelty	1	6.33	6.33	3.29	.07
CVPA	1	12.32	12.32	6.39	.01**
Typicality × Novelty	1	22.38	22.38	11.61	.00***
Typicality × CVPA	1	.91	.91	.47	.49
Novelty × CVPA	1	4.40	4.40	2.29	.13
Typicality × Novelty × CVPA	1	.34	.34	.18	.67

** < .05. *** < .001.

The direction of H3 was also confirmed. That is, products perceived as less typical and less novel (i.e. Cell $1_{(LowTyp/LowNov)}$, beige sleeveless top) have greater influence on consumers' aesthetic preferences when contrasted with products perceived as less typical but more novel (i.e. Cell $2_{(LowTyp/HighNov)}$, ruffled sleeve shirt with floral print) ($M_{Cell1} = 3.90 > M_{Cell2} = 2.74$). Data also confirms that products perceived as more typical and more novel (i.e. Cell $4_{(HighTyp/HighNov)}$, long sleeve laced blouse with floral print) have a greater influence on consumers' aesthetic preferences when compared with products perceived as more typical but less novel (i.e. Cell $3_{(HighTyp/LowNov)}$, white long-sleeve button-down shirt) ($M_{Cell4} = 3.32 > M_{Cell3} = 3.25$). H3 results suggest that respondents prefer products that are more balanced in the mixture of the properties of typicality and novelty. This is consistent with prior research confirming the MAYA principle (e.g. Hekkert et al., Citation2003).

For the two-way interaction between typicality and CVPA (H4), test results showed a non-significant *typicality × CVPA* interaction ($F_{(1,320)} = .47$, $p = .49$). Similarly, the two-way interaction between novelty and CVPA (H5) showed a non-significant *novelty × CVPA* interaction ($F_{(1,320)} = 2.29$, $p = .13$). Thus, H4 and H5 were not supported. These non-significant interactions seen in Figure 2(b) and (c), respectively, show lines that are not parallel, yet they do not intersect. The last hypothesis H6 proposed a three-way interaction effect of typicality, novelty, and CVPA. Test results in Figure 2(d) and (e) show a non-significant *typicality × novelty × CVPA* interaction ($F_{(1,320)} = .18$, $p = .67$). Figure 2(d) shows the *typicality × novelty × CVPA$_{LOW}$* interaction with lines that intersect. Figure 2(e) shows the *typicality × novelty × CVPA$_{HIGH}$* interaction with lines that are not parallel but do not intersect. Nevertheless, H6 was not supported.

The H1 non-significant result may have been influenced by the variety of prototype drawings that were selected when respondents chose the shirt prototype. Most of the sample (60.20%) indicated shirt prototypes similar to a t-shirt (Drawings No. 2, 4, and 5); while 39.90% of respondents indicated prototypes that looked like button-down shirts (Drawings No. 1 and 3). Shirt prototype drawings can be seen in supplemental data. These divergent prototypes possibly generated variations in the typicality evaluation of the stimuli. However, due to the implicit limitations of the experimental design, this subjective typicality variation was not accounted for in the data analysis because the typicality levels of the stimuli were fixed (low/high). As for the H2 results, respondents' ratings of aesthetic preference were influenced by novelty, which is consistent with previous research (e.g. Radford & Bloch, Citation2011); however, contrary to our assumptions, lower novelty levels caused the highest aesthetic preference ratings, instead of the highest levels of novelty. It is possible that the high levels of novelty were perceived as being too novel, especially the stimulus in Cell 3, thereby making the low novelty options more appealing.

Results of H4–6 suggest that CVPA does not have a significant effect on consumers' aesthetic preference of apparel products, specifically shirts, when studying the aesthetic properties of typicality and novelty. Contrary to expectations, the CVPA construct did not moderate aesthetic preference relative to the stimuli used within this study. These results are not consistent with prior studies (e.g. Workman & Caldwell, Citation2007) and there are several possible explanations as to why. First, clothing is usually a high involvement category that has a complex relation to identity (Miller-Spillman, Reilly, & Hunt-Hurst, Citation2012). Therefore, it is likely that consumers, including low CVPA respondents, are more visually driven in relation to high-involvement categories like apparel when compared to low-involvement categories. Perhaps the classification of consumers by CVPA is more useful to low-involvement categories.

A second plausible explanation for the H4–6 results can be found in the demographics of the participants. When analysing the low/high CVPA groups, age was the only characteristic that

provided some demographic dissimilarities by CVPA. While most low CVPA respondents reported ages of 26–45 years (66.10%); the majority of high CVPA respondents reported ages of 18–35 years (55.20%). Interestingly, when considering participants aged 56 or older, while 14.20% reported high levels of CVPA (n = 36), only 4.8% reported low CVPA levels (n = 3). That is, a higher proportion of high CVPA respondents was found to be in the older age ranges. Consequently, age may be a factor influencing aesthetic preference results.

To aid the discussion, high CVPA respondents in Figure 3 indicated a higher preference for the products with lower novelty when compared to low CVPA respondents. Based on demographic analysis of the CVPA groups, this preference is contrary to the assumption that younger individuals tend to choose more innovative products (Rogers, Citation1962). However, market data supports age as a possible explanation. Based on a database of 220 million consumers, Cambridge Analytica reports that 'the top retail brand for middle-income Americans turned out to be an 86-year-old women's apparel brand' (Zaczkiewicz, Citation2017). Thus, middle-income Americans, including younger ones, prefer brands that offer apparel designs described as being more typical and less novel than other brands. A third plausible explanation for the non-significant CVPA moderator may be that the high novelty stimuli chosen for the present study were perceived as being too novel. Therefore, the lower novelty options were preferred over the high novelty options. A fourth, and last explanation, is the possibility of a social desirability bias. As 'choosing a product with good design affirms the consumer's sense of self' (Townsend & Sood, Citation2012, p. 415), it is logical that some respondents were influenced by an aspect of social desirability response bias which indicates that individuals over-report activities (e.g. liking products with superior design) that are deemed to be socially desirable (Zerbe & Paulhus, Citation1987). Thus, a certain number of high CVPA respondents may not place as much importance on visual aesthetics and product design as they reported.

5. Conclusions and implications

This research employs the Most Advanced, Yet Acceptable principle (MAYA principle) to explore the influence of the Centrality of Visual Product Aesthetics (CVPA) on consumers' aesthetic preference relative to apparel products. An experimental design measured the aesthetic preference generated by the notion of beauty in the consumer via the visual recognition of product structures behind the MAYA principle, specifically, typicality and novelty. Results of the experiment confirm the primary assumption of the principle and provide evidence of the interaction effect of typicality × novelty (H3), indicating that the MAYA principle holds for the evaluation of apparel products, and specifically shirts. Findings also support the idea that the main effect of novelty influences the aesthetic preference of shirts (H2); however, the main effect of typicality was found to be non-significant (H1).

Findings indicate that respondents prefer products that are more balanced in the mixture of the properties of typicality and novelty. That is, if there are two stimuli with low novelty, respondents prefer the product with the lowest typicality to choose a product that does not look as familiar as the product with higher typicality. If the stimuli novelty is high, respondents prefer the product with the highest typicality because the novelty is mitigated to a certain degree, as the prototypical elements of the product add familiarity to the overall perception of the product. However, if the product is high in novelty, low typicality may add to the novelty factor and increase the perception of newness, as typicality variation can be used to achieve novelty (Tyagi & Whitfield, Citation2014). Consequently, despite typicality and novelty being different properties,

they are intrinsically related. Despite verification of the MAYA principle for apparel products, the other hypotheses were not supported (H4–6), which suggests that the CVPA construct does not act as a moderator of the evaluation of shirts via aesthetic preference.

Results of the study offer insight into both theory and practice. The majority of tests on the MAYA principle, such as Diels et al. (Citation2013), have replicated the experimental design proposed by Hekkert et al. (Citation2003) with repeated measures. Accordingly, the present study augmented the literature by testing the MAYA principle with a between-subjects experimental design as experiments with independent observations provide advantages over repeated measures (Montgomery, Citation2013). Managerial implications are threefold. The first relates to consumers being guided by the MAYA principle when evaluating the visual product design, specifically for shirts. The second has to do with results that reported most participants as having high levels of CVPA. That is, the majority indicated placing great importance on the visual design of apparel by preferring more novel and/or less typical designs (e.g. trendy apparel), regardless of the possibility that sometimes they choose more typical and/or less novel designs (e.g. basic apparel). Perhaps consumers do value fashion design, and therefore, occasionally prefer what is less novel and more typical to balance the overall aesthetic of their apparel outfits. The third implication relates to the prototypical images influencing the subjective evaluations of typicality. As consumers recall different prototypes of a category, fashion designers need to be aware that typicality evaluations of products include a certain level of ambiguity.

Limitations of the study primarily have to do with the selected stimuli. The high-novelty options included subtle fabric prints, as designs with plain fabrics did not rate high enough in the novelty evaluation during the pre-tests. Nevertheless, specific characteristics of the chosen stimuli, like prints, may have had an influence on the evaluation of those products, as taste plays a role in product evaluation (Hoyer & Stokburger-Sauer, Citation2012). Future studies may consider other product categories and impacts on perceptions of ease of use and functionality. In addition, as age was a demographic variable that influenced the main effect of typicality (H1), future research may consider controlling for age.

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Disclosure statement

No potential conflict of interest was reported by the authors.

Data availability statement

Data sets associated with this paper can be requested to the corresponding author.

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