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Online impulse purchases versus planned purchases and the role of visual attributes

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ABSTRACT

Given the rapid growth of online buying, there seems to be a significant gap in understanding how consumers derive satisfaction from their past online fashion purchases, particularly in the absence of tactile experiences, relying solely on visual aesthetics for both planned and impulse decisions. This gap examines the necessity of evaluating how online shopping platforms should cater to diverse consumer behaviors. The goal is to examine how the visual aesthetic attributes of fashion clothing purchased online, whether through impulse or planned decisions, can influence satisfaction through a conceptualized model. It incorporates several variables' mediating and moderating roles for a more plausible explanation. Two distinct samples were drawn from consumers who independently made planned purchases and those who made impulse purchases, totalling 483 respondents in the survey. Multigroup Structural Equation Modeling was employed for data analysis. The findings reveal that visual aesthetics significantly and positively impact perceived risk, perceived quality, and satisfaction. Additionally, perceived risk positively influences perceived quality. However, perceived quality exhibits a negative relationship with satisfaction. Both impulse and planned behaviors significantly moderate the relationship, except for the value aesthetic attributes of fashion clothing and perceived risk for impulse buyers. This article contributes to the theoretical and practical implications.

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Planned purchases; impulse purchases; virtual aesthetics; satisfaction; perceived risk

1. Introduction

The evolution of online or e-retailing has sparked further research, with the emergence of new models prompting retailers to expand and diversify their distribution channels (Guercini et al., 2018). This trend is particularly prevalent in the fashion industry, presenting opportunities for additional investigation

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(Roozen et al., 2023). While planned and impulse purchases within the retail environment have been extensively studied (Yang & Lee, 2016), there is limited research on measuring satisfaction derived from purchases influenced by visual aesthetic attributes, especially when comparing planned and impulse buying behavior and their consequences. Impulse buying behavior holds particular significance in the fashion industry (Khan et al., 2016), particularly for apparel purchases made impulsively. Examining how consumers perceive visual aesthetic attributes and express satisfaction in comparison to planned and impulse behavior will offer fresh insights into the e-retailing process. Visual aesthetics play a central role in the buying process, significantly influencing consumer decision-making and satisfaction, particularly for spontaneous online purchases where physical touch is not possible. While user-generated content such as reviews provides some insight, visual cues are essential for creating urgency and desire.

Impulse purchases often lead to heightened dissonance and perceived risks (Chen et al., 2019). Despite immediate gratification, customers might encounter post-purchase dissatisfaction, particularly when evaluating the product's utility and functionality. Post-purchase regret is significant in impulse-buying situations (Kumar et al., 2021) due to a lack of thorough consideration. Perceived risk involves a consumer's uncertainty and potential negative consequences. Contextualizing these mixed findings can enhance scientific discourse and deepen our understanding of planned and impulse online purchases.

This study aims to investigate how the visual aesthetics of online fashion purchases, whether impulsive or planned, influence satisfaction through a conceptual model. It also explores mediating and moderating variables to provide a comprehensive explanation. In response to calls for exploring antecedents of online impulse buying behavior, this research emphasizes the crucial task of identifying specific triggers (Kathuria & Bakshi, 2024).

This study contributes to highlighting the impact of impulse and planned buying behaviors affecting satisfaction, offering valuable insights to enhance online shopping experiences and strategies for customer satisfaction, that would ultimately increase market share and improve customer loyalty. By examining the interplay between impulse and planned online purchasing, the research constructs a model that elucidates the relationship between visual attributes and satisfaction, with a focus on risk and quality, as potential mediators. This comprehensive approach will also explore the dynamic moderating interactions between impulse and planned purchases, providing a nuanced understanding essential for optimizing online retail strategies.

2. Hypothesis development

Depending on how creative visual aesthetics can attract consumers, the more likely they would buy it. At other times, it may lead to impulse buying. The following paragraphs examine the attractiveness of visual aesthetics on consumers' affective response and its influence on, perceived risk, perceived quality, and satisfaction.

2.1. Visual aesthetics attributes

Visual aesthetics are crucial for online platforms. In this research, we refer to fashion-related features presented by retailers, including both subjective beauty and objective design elements. Consumers also infer sensory experiences from a product's appearance.

According to Brown (1992), fashion products can be perceived in two dimensions: physical features (i.e. the garment's attributes) and performance benefits (i.e. what the garment accomplishes). Physical features include aspects such as design, materials, fabric, and construction techniques, while performance benefits encompass both aesthetic and functional aspects. Fashion aesthetic attributes encompass elements such as colour, pattern, style, fabric, and how well they complement each other. In the realm of online shopping, attributes related to product functionality notably influence consumers' perceived risks positively (Cho et al., 2014). Researchers have also identified a positive correlation between sensory and origin-related attributes and perceived risk (Cho et al., 2014). Moreover, findings suggest that visual attributes such as fit, fabric texture, and the ability to physically assess products in virtual environments can significantly heighten perceived risk (Almoussa, 2011). Consequently, the presentation of visual aesthetics in virtual settings is likely to impact perceived risk. Accordingly, we propose:

H_{1a}: Online visual aesthetics positively influence consumers' perceived risk of online fashion clothing.

Assessing apparel based on its visual aesthetic attributes is crucial in the decision-making process. De Klerk and Lubbe (2008) emphasize that consumers' evaluation of apparel quality goes beyond functional aspects to include aesthetics, often termed as the "non-instrumental qualities" of the apparel. This aesthetic evaluation encompasses the utility of symbolic and expressive qualities inherent in the product (O'Neal, 1998).

Visual aesthetic attributes also directly influence quality perceptions. Fashion attributes such as fit, comfort, price-performance ratio, and overall quality are highly significant for consumers (Rausch et al., 2021). Despite the importance of haptic or tactile elements such as texture (silk, cotton, linen are texturally different), feel, and weight in determining product quality, they are not easily discernible online. Consequently, consumers often rely on other visual aesthetics to guide their decision-making process (Yu et al., 2012). Moreover, research comparing direct and indirect product experiences regarding consumer quality preferences, especially regarding haptic attributes, found no significant differences when visual information quality is highly diagnostic (McCabe & Nowlis, 2003). Several authors suggest that visual aesthetic attributes interact with the aesthetic quality of apparel (De Klerk & Lubbe, 2008). Thus, we propose testing the following hypothesis:

H_{1b}: Online visual aesthetics positively influence consumers' perceived quality of fashion clothing.

2.2. Satisfaction

Customer satisfaction is a widely studied construct recognized for its diverse conceptualizations and methodological approaches (Santini et al., 2018). Oliver (2014) defines customer satisfaction as a cognitive-emotional state of happiness or contentment when customer expectations, needs, or wants are met. Satisfaction with visual aesthetics is crucial as it often prompts impulse and planned purchases.

Schenkman and Jönsson (2000) propose two dimensions for website visual aesthetics: aesthetic formality and aesthetic appeal. Aesthetic formality relates to the perceived organization and orderliness of a website, while aesthetic appeal is linked to the perceived novelty and meaningfulness of the website's design. In the fashion domain, Chi and Sullivan (2018) discovered that visual appeal positively influences customer satisfaction.

Two primary factors impacting satisfaction are risk management and quality improvement by retailers. These efforts build trust, mitigate dissatisfaction, enhance perceived value, and meet consumer expectations. Quality positively correlates with satisfaction, while risk affects post-purchase satisfaction (Simcock et al., 2006). Additionally, visual aesthetics significantly influence satisfaction in online purchases, where the inability to physically examine and try products heightens concerns.

Consumers are increasingly attracted to brands based on aesthetic appeal and unique visual designs (Schmitt & Simonson, 1997). Effective visual aesthetics can influence consumer behavior and satisfaction (Changchit & Klaus, 2020). This extends to services, with visual servicescape aesthetics positively correlating with overall satisfaction (Lin, 2016).

Fashion attributes represent intrinsic features that are essential for defining fashion and play a fundamental role in customer satisfaction (Kaushik et al., 2020). Additionally, the presence of the attractiveness halo effect in online reviews has been investigated, revealing how brand evaluations can be enhanced (Ozanne et al., 2019). However, unresolved issues persist regarding fit and size expectations in online purchases (Miell et al., 2018). Despite this, consumers continue to base their decisions on other functional utilities, which can ultimately lead to satisfaction. Furthermore, a gap exists in the literature regarding the differentiation between planned and impulse purchases concerning visual aesthetic attributes and their direct impact on satisfaction. The interaction with visual aesthetic attributes online suggests the following hypothesis:

H_{1c}: Online visual aesthetics positively influence consumers' satisfaction after purchase.

2.3. Perceived risk

This paper examines perceived risk theory and perceived quality as mediators and explores the moderating effects of impulse and planned behaviors on satisfaction. By focusing on satisfaction in both planned and impulse purchases, this research delves into these intricate relationships. Perceived Risk Theory (PRT) helps understand consumer behavior by focusing on reducing uncertainty during purchase decisions (Bauer, 1960). PRT suggests consumers prioritize minimizing perceived risk over

maximizing utility (Cho et al., 2014). Higher perceived risk often leads consumers to view product quality as lower, regardless of objective measures. High perceived quality can reduce perceived risk by decreasing uncertainty (Aaker, 1991). Since purchase outcomes are unpredictable, consumer uncertainty and perceived risk persist (Mitchell, 1992), influencing quality perceptions and impacting satisfaction. Therefore, perceived risk can influence quality perceptions, ultimately impacting satisfaction.

Online purchasing decisions involve higher perceived risks than in-store purchases, influencing satisfaction and perceived quality. The inability to physically examine products and lack of personal contact makes online shopping riskier than traditional shopping (Goldsmith & Goldsmith, 2002). Even with advanced visual technologies, the absence of tactile experiences, like feeling the fit or texture of fashion items, raises consumer concerns.

Perceived risk has also been investigated within the service sector (Sharma et al., 2014). Others demonstrate that perceived risk has a significant influence on impulse buying (Ha, 2011), and a negative influence on satisfaction (Wu et al., 2020). In terms of quality, perceived risk has been found to mediate between value and quality (Sweeney et al., 1999). Given the influence between perceived risk and perceived quality, we propose:

H_{2a}: Perceived Risk positively influences the perceived quality of online fashion purchases.

H_{2b}: Perceived Risk mediates the relationship between fashion product attributes and satisfaction.

2.4. Perceived quality

Perceived values like quality and price are crucial in online fashion shopping (Salem & Alanadoly, 2022). Perceived quality, defined as a customer's evaluation based on experience (Cowen-Elstner, 2018), involves customization and reliability. Quality management is tied to perceived risk, as consumers fear product failure to meet expectations (Kiang et al., 2011). Even website quality influences consumers' buying behavior.

Website layout influences user behavior (Palmer, 2002), with content and navigation being key elements (Kincl & Štrach, 2012) that stimulate user emotions through visual impressions (Linggaard et al., 2006). Perceived quality increases online impulse behavior (Hayu et al., 2020) and mediates between various factors and satisfaction (Lin, 2016). Quality aligns expectations with reality and enhances long-term satisfaction, positively affecting satisfaction (Chi & Sullivan, 2018).

The sensory, emotional, and cognitive dimensions of the aesthetic experience are crucial when female consumers evaluate apparel quality, with 3D virtual presentations reducing perceived psychological risk. Rust and Oliver (1994) distinguished perceived quality from satisfaction, viewing quality as specific to product and service features, while satisfaction can stem from any dimension, such as loyalty or expectations. Perceived quality directly impacts overall customer satisfaction (Yu et al., 2012). Sometimes consumers lack awareness of the role aesthetics have on their apparel behaviour and are not informed as to how quality indicators should be assessed (De Klerk & Lubbe, 2008). Thus, when quality

expectations are not met, it leads to dissatisfaction (Brown & Rice, 1998). There are mixed views, and based on the above observations, we intend to propose the following:

H_{3a}: Perceived quality is positively related to satisfaction with online fashion clothing.

H_{3b}: Perceived quality positively mediates the relationship between visual aesthetic attributes of the fashion clothing and satisfaction with online fashion purchases.

2.5. Moderating role of impulse vs planned behaviour

Another primary objective of our study was to understand how visual aesthetics impact satisfaction in planned versus impulse purchases. Analyzing these differences provides valuable insights for optimizing user experience and enhancing persuasive website design, ultimately improving conversion rates and customer satisfaction.

Impulse buying occurs when consumers feel a sudden, unplanned urge to purchase, driven by emotional attraction and a desire for immediate satisfaction (Rook, 1987). This behavior is more instinctive and carefree than thoughtful. Factors such as information retrieval, search before purchase, and decision-making duration affect perceptions of visual aesthetics, risk, quality, and satisfaction (J. A. Lee & Kacen, 2008). Impulse purchases often limit choice alternatives, hindering careful consideration of available information (Rook, 1987). External factors like visual aesthetics and website information also significantly encourage impulse buying (J. A. Lee & Kacen, 2008).

Planned purchases involve a more organized approach, with consumers taking time to gather information, compare prices, and engage in thorough decision-making (J. A. Lee & Kacen, 2008). Apparel influences various hedonic behaviors, leading to differences between planned and impulsive online purchases (Park & Kim, 2008). Given the deliberate consideration in planned purchases, significant differences are anticipated. Therefore, we propose:

H₄: Planned and impulse groups moderate the relationship between.

H_{4a}: Online visual aesthetics and perceived risk

H_{4b}: Online visual aesthetics and perceived quality

H_{4c}: Online visual aesthetics and consumers' satisfaction after purchase.

H_{4d}: Perceived risk and the perceived quality of online fashion purchases.

H_{4e}: Perceived quality and satisfaction with online fashion clothing

2.6. Conceptual model

The model suggests that the visual aesthetics of online product attributes positively impact perceived risk, quality, and satisfaction. Perceived risk directly influences

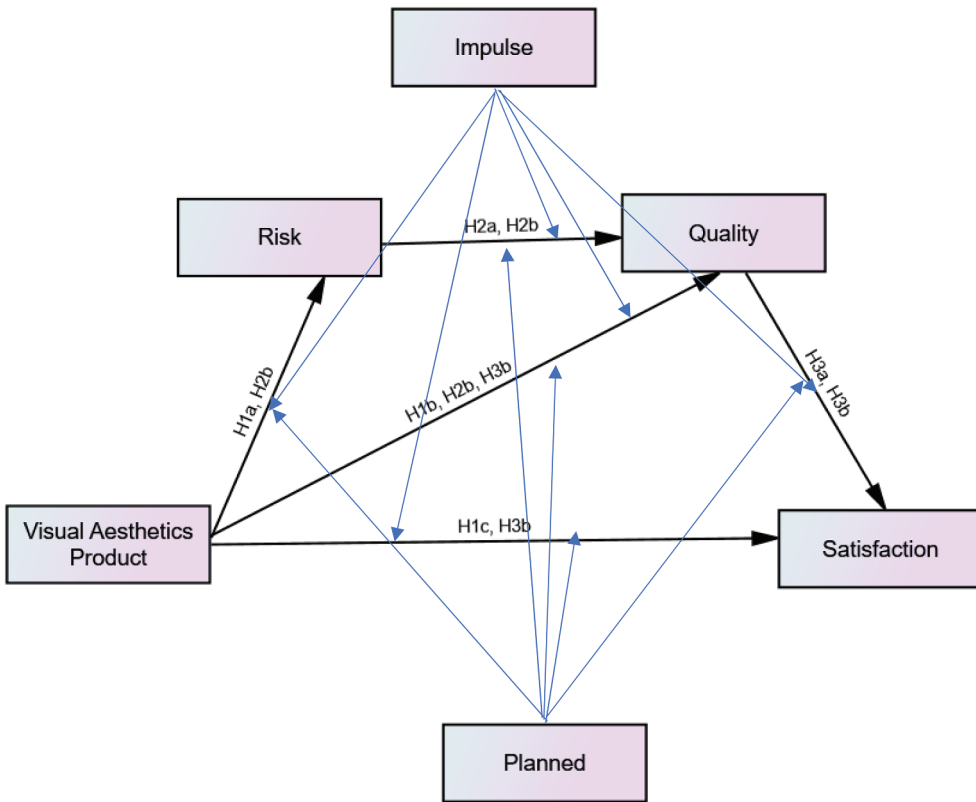


Figure 1. Conceptual model.

perceived quality and mediates between visual aesthetics and perceived quality. Perceived quality directly affects satisfaction and mediates between visual aesthetics and satisfaction. The model also includes the moderating roles of impulse and planned behavior, which will be further discussed (Figure 1).

3. Methods

We utilized Structural Equation Modeling (SEM) and Multilevel SEM to analyze the data. SEM integrates various techniques under one framework, with core principles better understood through integration (Hair et al., 2020). Multilevel SEM includes multilevel confirmatory factor analysis (CFA) and addresses variations in indicators across individuals and contexts through latent variables at both individual and contextual levels. The study utilized QuestionPro survey software for data collection. Participants were presented with a digital consent page at the beginning of the survey, ensuring confidentiality and anonymity of collected data. To ensure data completeness, respondents had to answer all questions before progressing. Only established and validated scales were used, including initial questions from the Marlowe-Crowne social desirability scale to assess response biases. These questions aimed to gauge participants' inclination to respond in a socially desirable manner. All scales were adapted to the study's context.

Satisfaction assessment was derived from Kristensen et al. (2000), while virtual aesthetics questions were modified from Heller et al. (2019) and adjusted for the study. Perceived risk items were sourced from Logkizidou et al. (2019), with questions on haptic information risk adapted from Peck and Childers (2003). Perceived quality was measured using items from Swinker and Hines (2006). Product visual aesthetics questions, not website-related, were taken from Moshagen and Thielsch (2010) and adjusted for this study, focusing on color, description simplicity, and design craftsmanship. For Structural Equation Modeling (SEM), a minimum sample size of 200 is recommended (Hoelter, 1983).

3.1. Sample

Two samples were collected: one for impulse purchases and the other for planned purchases, both associated with recent purchases made within the last 6 months. Data for impulse purchases were obtained from a professional market research agency in Australia to gather nationwide data and obtain an exclusive sample. For planned purchases, recruitment began with social media advertisements on platforms like Facebook, Instagram, or LinkedIn, followed by a snowballing technique, a non-probability method known as referral sampling (Emerson, 2015). The first 10 participants were recruited through known sources and asked to refer peers or family members, who were then contacted with the survey link. This process continued until 300 participants were recruited, with 277 questionnaires used for analysis. Questionnaires were filtered to include only participants who made impulse purchases for impulse buyers and planned purchases for planned buyers within the last six months. Before distribution, the study was piloted.

For examining the main hypotheses, the structural model was estimated using a combined sample of impulse and planned purchases (483 participants). Table 1 presents the demographic profile of both samples. Impulse purchases were more prevalent among younger buyers aged 18–24, while planned purchases had more females than males. The planned purchase sample generally had slightly higher education levels compared to impulse buyers. Demographics regarding occupations were consistent across both samples. Impulse purchases had more married consumers and a higher median income.

3.2. Measurement model

Table 2 provides the factor loadings, average variance extracted (AVE), and Composite reliability (CR) for the combined model using SPSS Amos version 28. Composite reliability is a measure of internal consistency reliability that accounts for the varying indicator loadings, rather than assuming equal loadings, in its calculation. Composite reliability values is greater than 0.60 and thus indicates internal consistency reliability (Hair et al., 2020).

Convergent validity and discriminant validity (Churchill & Iacobucci, 2002) are shown in Tables 2 and 3. As demonstrated the standardized factor loadings range from moderate ($\geq .52$) to high (.84), with significant t-value thus indicating convergent validity (Anderson & Gerbing, 1988). Table 3 further tests the discriminant and

Table 1. Socio-demographic profile of Sample 1 and 2.

	Sample 1 (N = 206) <i>Impulse purchases</i>		Sample 2 (N = 277) <i>Planned purchases</i>	
	Frequency	Percent	Frequency	Percent
AGE				
18–24	20	9.7	65	23.5
25–34	66	32	126	45.5
35–44	44	21.4	42	15.2
45–54	22	10.7	18	6.5
55–64	20	9.7	23	8.3
Above 64	34	16.5	3	1.1
GENDER				
Female	45	21.8	184	66.4
Male	159	77.2	89	32.1
Other	2	1	4	1.5
EDUCATION				
High school	57	27.7	10	3.6
Some college	17	8.3	21	7.6
Trade/vocational/technical	45	21.8	24	8.7
Associates	7	3.4	5	1.8
Bachelors	60	29.1	125	45.1
Masters	14	6.8	74	26.7
Professional	4	1.9	6	2.2
Doctorate	2	1.0	12	4.3
OCCUPATION				
Student	15	7.3	56	20.2
Freelancer	10	4.9	7	2.5
Business owner	10	4.9	17	6.1
Blue collar worker	21	10.2	22	7.9
White collar worker	65	31.6	119	43.0
Unemployed	15	7.3	5	1.8
Homemaker	33	16.0	7	2.5
Retired	31	15.0	10	3.6
Other	6	2.9	34	12.3
MARITAL STATUS				
Single or never married	70	34	167	60.3
Married	105	51	88	31.8
Separated	8	3.9	3	1.1
Divorced	11	5.3	7	2.5
Widowed	8	3.9	1	.4
Prefer not to say	4	1.9	11	4.0
INCOME				
Less than \$19,999	19	9.2	38	13.7
\$20,000–\$39,999	39	18.9	32	11.6
\$40,000–\$59,999	39	18.9	39	14.1
\$60,000–\$79,000	29	14.1	37	13.4
\$80,000–\$99,000	26	12.6	42	15.2
\$100,000–\$119,000	14	6.8	20	7.2
\$120,000 and above	27	13.2	27	9.7
Prefer not to say	13	6.3	37	13.4
Not applicable	0	0	5	1.8

convergent validity of the constructs in the dataset. It can be observed that the average variance extracted (AVE) for the constructs exceeds the threshold criterion of 0.50. The bivariate correlations are significant and in expected directions and within the recommended range, thus supporting discriminant validity. As per Fornell-Larcker criterion to assess discriminant validity in structural equation modeling, the square root of the Average Variance Extracted (AVE) of each construct should be greater than the highest correlation of that construct with any other construct in the model (Fornell & Larcker, 1981).

Table 2. Factor loadings, AVE and CR.

	Factor loading
Perceived Risk AVE .54 and CR .85	
1. Even though I know that the delivery might take some time, I was willing to buy it online	.528
2. I was willing to buy fashion clothing not knowing whether my social circle would approve of	.830
3. Even though I couldn't try the fashion clothing, I was willing to buy it online	.845
4. Even though I couldn't bargain/negotiate the fashion clothing, I was willing to buy it online	.768
5. Even though I couldn't feel the fabric, I was willing to buy it online	.675
Online Perceived Visual Quality AVE .54 CR .78	
1. The fashion clothing looked appealing online (made to last)	.742
2. Quality of fashion clothing was made according to the best standard and correct specifications as shown online	.733
3. Quality of fabric was worn well by the model shown online	.754
4. Quality of the fabric looked good online	.734
Satisfaction with online purchase AVE .67 and CR .86	
1. The level of satisfaction of buying fashion clothing online is close to my ideal satisfaction level	.846
2. Overall, I am satisfied with the fashion clothing I bought online	.813
3. I am satisfied with the online experience I had when buying fashion clothing online	.813
Visual Aesthetic Attributes AVE 0.57 and CR .80	
1. The material of the fashion clothing I bought is what was described online	.803
2. The colour of the fashion clothing was accurate to what was shown online	.722
3. The design of the fashion clothing fitted my requirements	.757

Table 3. Discriminant validity.

	Visual Aesthetics	Satisfaction	Quality	Risk
Visual Aesthetics	.73			
Satisfaction	.739**	.82		
Perceived quality	.604**	.499**	.74	
Perceived Risk	.623**	.553**	.491**	.73

**Correlation is significant at the 0.01 level (2-tailed).

The values in the lower triangle of the matrix represent the correlation coefficients between the constructs. The diagonal values represent the square root of the Average Variance Extracted (AVE) of each construct.

The causal model did not include a direct path from perceived risk to satisfaction. It would be beneficial to know if the presence of any of these omitted paths would lead to a better model. However, no path was found with a significant *p*-value for its addition indicating that the chi-square fit of the model would not substantively improve by including the excluded paths. Our results indicate that perceived risk was not significant with satisfaction when perceived quality was considered in the model. This provides further support for our mediated model of the satisfaction effects of online participation.

The fit of the structural path model with each path indicated a reasonable fit (i.e. $\chi^2 = .644$; $df = 2$; RMSEA = .00; GFI = .99, CFI = 1.00). The results of the combined structural model can be found in Table 4. Visual aesthetic product attributes were positively and significantly influenced by perceived risk ($\beta = .78, p < .001$); perceived quality ($\beta = .69; p < .001$) and satisfaction ($\beta = 1.04, p < .001$) thus H_{1a} , H_{1b} , and H_{1c} were supported. However, this research shows that perceived risk is significantly positively related to perceived quality ($\beta = .10, p < .05$), hence H_{2a} is supported, while perceived quality shows a significant relationship with satisfaction, it also shows this relationship to be negative ($\beta = -0.178, p < .001$). Thus, H_{3a} is supported.

Table 4. Structural model.

			Estimate	S.E.	C.R.	P-value
Visual Aesthetics	→	Perceived Risk	.780	.027	27.396	***
Perceived Risk	→	Perceived quality	.104	.045	2.24	.025
Visual Aesthetics	→	Perceived quality	.686	.043	14.782	***
Visual Aesthetics	→	Satisfaction	1.04	.036	35.489	***
Perceived quality	→	Satisfaction	-0.178	.038	-6.06	***

Table 5. Total, direct and indirect effects.

	Visual Aesthetics	Perceived Risk	Perceived quality
Total Effects			
Risk	.78***	0	0
Quality	.768***	.104*	0
Satisfaction	.904**	-.018*	-.178***
Direct Effects			
Risk	.78***	0	0
Quality	.686**	.104*	0
Satisfaction	1.04***	0	-.178***
Indirect Effects			
Risk	0	0	0
Quality	.081*	0	0
Satisfaction	-.136***	-.018**	0

In terms of indirect effects and moderating results, there were two hypotheses; H_{2b} : Perceived Risk mediates the relationship between fashion product attributes and satisfaction, and H_{3b} : Perceived quality positively mediates the relationship between visual aesthetic attributes of the fashion clothing and satisfaction with online fashion purchases. Both of which showed a partial mediation, however, perceived quality showed a suppressed relationship, as shown in Table 5.

3.3. Measurement invariance

To examine group differences, it's essential to ensure that observed disparities stem from structural differences rather than measurement variations across groups. Invariance testing, advocated by Byrne (2016), is a valuable methodological tool for scrutinizing the robustness and generalizability of structural models, enhancing the validity and reliability of research findings. Following Byrne's (2016) guidelines, we employed this process to investigate how online shopping behavior varies across planned and impulse purchases. It assesses whether the structural and measurement components of the alternative model remain invariant across groups (Byrne, 2016). Initially, a baseline model is considered where the loading pattern is similar in all groups, while parameter magnitudes may vary. Measurement invariance ensures that the instrument measures the target latent constructs with the same factorial structure across groups. Thus, the research estimates and compares constrained confirmatory factor analysis models to test for measurement invariance. The configural invariance model is fitted for each group separately without using equality constraints, and configural invariance exists if the baseline model shows a good fit with similar significant loadings across both groups.

With the metric invariance model, the factor loadings and intercepts are assumed to be equal across groups, but the intercepts are allowed to vary. The test for metric invariance

showed a significant $\Delta\chi^2$ ($p < .05$). Since the test for metric invariance was found to be significant, Hu and Bentler's (1999) guidelines for model fit indices are employed. After inspection of the path coefficient, one item was relaxed to obtain partial metric invariance. This was found to be insignificant as indicated by the p -value ($p = .93$). A further test on latent mean invariance revealed a nonsignificant worsening of fit (Steenkamp & Baumgartner, 1998). These tests establish that invariance across the online groups holds (Van de Schoot et al., 2012). The results show acceptable measurement invariance across the groups.

The combined sample of the structural model shows a good fit ($N = 483$). The structural model indicated a reasonable fit ($\chi^2 = 227.431(82)$, p -value = .00, the $\chi^2/df = 2.77$, RMSEA = .06, CFI = .96, TLI = .95, NFI = .94, GFI = .94 and AGFI = .91). Following this, a multigroup analysis was performed to test the parameter estimate differences between impulse and planned buying behavior. Initially, a model allowing the parameters to be evaluated freely for each group is estimated. The results demonstrate that the structural path model that was hypothesized fits well and all indices are within the acceptable range for a satisfactory model ($\chi^2 = .779(1)$, p -value = .337, $\chi^2/df = .779$, RMSEA = .00, CFI = 1.00, RFI = 0.99, GFI = .99 and AGFI = .99) and thus indicate good empirical support of the theoretical model. All hypotheses were supported. Consistent with the theoretical predictions, the research shows a positive association between all these variables.

We examine the differentiation between the two groups (planned and impulse) hypotheses 1 to 4 for determining the moderating effects of buying behaviour on each of the paths as indicated in the conceptual framework. Table 6 represents the results of the invariance tests. To compare across different groups a χ^2 difference test was performed between the unconstrained model that did not constrain the structural coefficients to be equal across the groups and a constrained model (Byrne, 2016). Assuming the unconstrained to be correct the χ^2 difference results showed a significant change ($\Delta\chi^2 = 15.501$, $\Delta df = 5$, $p = .01$), indicating a difference in the path coefficients across the groups and evidence of moderation. All the hypotheses were positively significant except for quality on satisfaction, which was negatively significant for the two groups, but the beta value for planned purchases was slightly higher than impulse purchase-related behaviour.

Table 7 demonstrates the moderating effects. All hypotheses were significant, with the exception of the path from visual aesthetic attributes to perceived risk for planned purchases was significant, but not for impulse purchases ($\beta_{\text{planned}} = .79$, $p < .05$; $\beta_{\text{impulse}} = .77$, $p > .05$). Similarly, between perceived risk and perceived quality, both paths were significant, but the impulse was weaker than planned purchases ($\beta_{\text{planned}} = .16$, $p < .05$; $\beta_{\text{impulse}} = .04$, $p < .05$). This study's findings also showed that the path from visual aesthetic attributes to satisfaction was significant ($\beta_{\text{planned}} = .96$, $\beta_{\text{impulse}} = 1.13$, $p < .05$), with impulse purchases being much stronger than planned purchases. The path from perceived website quality to satisfaction was negatively significant ($\beta_{\text{planned}} = -.114$, $\beta_{\text{impulse}} = -.259$, $p < .05$), with impulse purchases indicating a slightly higher negative perceived quality than planned purchases. Visual aesthetic attributes' influence on

Table 6. Invariance tests.

	χ^2	df	$\Delta\chi^2$	Δdf	P -value	CFI	TLI	RMSEA
Configural	356.302	164				.95	.93	.049
Metric	393.993	179	37.691	15	.001	.94	.93	.05
Partial Metric	352.506	155	-3.796	-9	.9243	.94	.93	.051

Table 7. Moderating effects.

<i>Model</i>	β Planned Purchase	β Impulse Purchase	χ^2	<i>df</i>	$\Delta\chi^2$	Δ <i>df</i>
<i>Unconstrained</i>			1.616	2		
<i>Structural Path Weights</i>			15.501	5	12.897	3*
B1 VISUAL AEST → SATISFACTION	.968***	1.130***	7.343	3	6.699	1**
B2 VISUAL AEST → PERC RISK	.796*	.775	1.050	3	.406	1
B3 PERCEIVED RISK → PERCEIVED QUALITY	.165***	.043***	1.974	3	1.329	1
B4 QUALITY → SATISFACTION	-.114***	-.259***	5.085	3	4.441	1*
B5 VISUAL AEST → PERCEIVED QUALITY	.602**	.768***	7.143	3	6.499	1*

perceived quality was significant for both ($\beta_{\text{planned}} = .602$, $\beta_{\text{impulse}} = .768$, $p < .05$). Most of these results are stronger for impulse purchases. This shows support with other research where impulse behavior was significant regarding affective image and satisfaction and other mediating variables on satisfaction (e.g. Chan et al., 2017). Impulse purchases and customer satisfaction when examined previously showed that risk was perceived as an important indicator for online shopping (J. A. Lee & Kacen, 2008). In this research visual aesthetics didn't show any significance on perceived risks for impulse purchases.

4. Discussions

This study aimed to fill a gap by exploring how online shopping platforms should adapt to diverse consumer behaviors through a conceptual model. It examines how visual aesthetic attributes of online fashion purchases, whether impulse or planned, impact satisfaction. The study considers mediating and moderating variables for a more comprehensive explanation.

4.1. Theoretical contribution

The research contributes significantly to the literature in several ways. Firstly, it integrates risk and quality aspects with product visual aesthetics to create a comprehensive model for explaining and predicting consumer satisfaction levels in online purchases. This model provides a nuanced understanding of factors influencing consumer satisfaction. Secondly, the study emphasizes the importance of considering satisfaction as a behavioral outcome by examining the mediating roles of risk and quality, as well as the moderating roles of planned and unplanned purchases. By incorporating these factors, the research offers a more comprehensive framework for understanding consumer behavior in online shopping. Lastly, the study provides valuable strategic insights for marketers seeking to enhance online purchase behavior. By clarifying the relationships between visual aesthetics, risk, quality, and satisfaction, marketers can tailor their strategies to better meet consumer expectations and preferences, thereby improving the overall online shopping experience.

Except for the negative significant direct effect of perceived quality on satisfaction, all other hypotheses were positively significant and supported. This contrasts with findings by Wang et al. (2011). Visual aesthetics can sometimes create high expectations for the product, leading to a discrepancy between anticipated and actual experiences upon receiving it. If the product falls short of these expectations in quality, functionality, or fit, satisfaction may decrease. Visual aesthetics positively influenced perceived risks and

were significant, aligning with literature suggesting that viewing the physical environment before purchase reduces perceived risk (Kim & Mattila, 2011). Perceived risk influenced perceived quality, supported by prior research (Goldsmith & Goldsmith, 2002). Thus, well-designed and appealing visual aesthetics are likely to enhance the shopping experience, increase satisfaction, and are mediated by perceived risks.

Understanding the moderating roles of planned and impulse buying enriches our understanding by emphasizing the importance of perceived risk theory and perceived quality. While visual aesthetics capture consumers' attention, perceived risk and quality are pivotal for online buying satisfaction. Interestingly, perceived risk was not significant for impulse buyers, aligning with prior research indicating a negative association between perceived risk and impulsive buying behavior, but not impulsive buying intention (G. Y. Lee & Yi, 2008). It's expected that visual merchandising, acting as a silent influencer in retail trade, should be the primary attractive cue impacting impulsive buying behavior (Iberahim et al., 2020). Conversely, if not appealing, consumers may perceive it as a risky buy (Chan et al., 2017).

4.2. Practitioner implications

Fashion, a dynamic sector evolving with online platforms, requires practitioners to adeptly manage customer behaviors both online and offline (Noris et al., 2021). Boosting online traffic is crucial, as visual aesthetics significantly impact perceived risk in planned purchases but not in impulse purchases, consistent with previous findings (J. A. Lee & Kacen, 2008). The study also identified significant moderating effects of visual aesthetic attributes on perceived quality. Implementing robust loyalty programs can serve as compelling incentives to attract buyers, as suggested by Yang and Lee (2016).

Visual aesthetics appear to have a slightly higher impact on impulse purchases compared to planned behavior. This difference may stem from the nature of impulse buying, characterized by sudden urges for immediate gratification driven by hedonic and emotional factors (Punj, 2011), making visual aesthetics particularly appealing in this context. To enhance planned behaviors, interface designers may need to explore how different facets of visual aesthetics can be leveraged more effectively. Additionally, perceived quality was significant but negatively related to satisfaction, indicating that perceived quality did not effectively influence customers' experiences and satisfaction evaluations in both, planned and impulse buying behaviors. This finding underscores the importance for practitioners to have an effective website interface integrating interpersonal services and technical aspects (Ford et al., 2013).

Impulse purchases may stem from feelings of boredom, presenting an opportunity for practitioners to address this issue by emphasizing strategies that provide customer value and satisfaction. Implementing such strategies can potentially mitigate the adverse effects of boredom-driven impulse buying and foster more meaningful shopping experiences for customers. Marketing stimuli are tailored differently for target markets, and our findings support that the influence of visual aesthetic attributes on satisfaction is more pronounced in impulse buying compared to planned purchases. Therefore, allocating more resources towards stimuli likely to yield stronger effects on impulse buying is advisable. Fashion retailers often prioritize visual merchandising to evoke positive emotions, stimulating impulse sales when visually communicating the product or brand.

Given the increasing trend of eco-fashions and recycled clothing, future research could focus on this area. It may yield different results as core consumer needs focus more on sustainability, with less emphasis on virtual aesthetic attributes for both planned and impulse purchases. This avenue of exploration would be valuable and warrants further investigation (D'Souza, 2015; D'Souza et al., 2015).

The study has certain limitations and offers opportunities for future research to explore additional antecedents of satisfaction with online buying. Variables such as age, attitudes, and income levels, which have been found to significantly correlate with web advertising in the literature, should be considered alongside online purchases to gain a better understanding of consumers' attraction toward advertising in general. The sample drawn from planned purchases was purposive and convenience-based due to participants' interaction and ability to shop on websites. However, the findings are generalizable beyond post-Covid, as all consumers had experience with online shopping. Despite these limitations, the study provides valuable insights into planned and impulse purchases within the fashion industry, which are crucial for marketers and contribute to the body of knowledge.

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