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Assembled or unassembled? Different types of outfit coordination presentations in online fashion retailing

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Abstract

In the realm of retailing, various methods of product presentation exert a significant influence on consumers' perceptions and behaviors. In the context of fashion retailing, one crucial aspect of presentation revolves around outfit coordination (OC), which can be displayed in either an assembled or unassembled manner. Assembled OC entails displaying fashion items collectively on a body, while unassembled OC involves presenting them individually on a flat background. Drawing from the literature on the Elaboration Likelihood Model of attention, this research explores the impact of assembled versus unassembled OC on consumers' imagery elaboration, attention, and product evaluations, employing three online experiments. In the first study (N = 126), we demonstrate that assembled OC, in contrast to unassembled OC, fosters greater imagery elaboration and elicits more positive product evaluations. Building upon these findings, the second study (N = 214) employs a serial mediation analysis to unveil the underlying mechanism involving shifted attention. The third study (N = 182) explores the moderating effect of fashion involvement, revealing that for consumers with a high level of fashion involvement, unassembled OC, rather than assembled OC, leads to higher levels of imagery elaboration and more favorable product evaluations. This research not only enriches the literature on online retailing and visual communication, but also provides actionable insights for industry practitioners on effectively presenting fashion products to online shoppers.

Keywords: Outfit coordination (OC), Online retailing, Imagery elaboration, Product evaluation, Fashion involvement

Introduction

Effective visual communication is crucial in online retail, impacting consumers' shopping experiences (Kim et al., 2009) and reducing perceived risk (Park et al., 2005). It enables consumers to identify product attributes, envision potential usage, and influence their evaluations (Lam & Mukherjee, 2005), which ultimately affects their purchase decisions (Roggeveen et al., 2015). Alongside product presentation, contextual cues like recency information (Min, 2023), consumption scenarios (Baek et al., 2021), and coordinating items (e.g., "complementarity" in Zhao & Xia, 2021) assist consumers in envisioning product use and facilitate decision-making.

In fashion retailing, complementary products are often presented alongside the focal product to provide coordination information. *Outfit coordination* (OC, hereafter) or “mix-and-match” recommendation is defined as suggesting information on combining different clothing pieces to create cohesive and stylish outfits, that is, “to combine in a harmonious or interesting way, as articles of clothing in an ensemble” (Wong et al., 2009, p. 2377). In physical stores, OC information is typically conveyed through multiple items displayed on mannequins (Entwistle, 2002). In online retail, OC is either shown on human/decorative model images (Berg, 2015) or individually placed in a two-dimensional format, often with items positioned separately (e.g., revolve.com; hats at the top and shoes at the bottom). Despite the various methods used in practice, little is known about the effective visual presentation of OC. The few existing findings are inconsistent; Zhao and Xia (2021) have demonstrated that the joint (vs. separate) presentation of items enhances mental imagery, leading to more positive evaluations, while Tsai and Zhao (2011) have suggested a positive effect of separate displays, indicating that consumers tend to experience higher levels of utility when items are separately presented instead of combinedly. We focus on the “joint” style of presentation discussed by Zhao and Xia (2021), which shows complementary products on one page (on each page for a “separate” presentation) and examines whether *assembled* or *unassembled* presentations of OC enhance consumers’ production evaluations.

In this research, we distinguish between two types of OC: “Assembled OC”, where fashion products are collectively displayed on a body, such as a mannequin or human figure, to represent a complete outfit; And “unassembled OC”, where items are presented individually on a flat background. Drawing from the Elaboration Likelihood Model (ELM, Petty et al., 1981), which emphasizes the importance of elaboration in shaping an individual’s attitude through the cognitive processing of stimuli like text and images (MacInnis & Price, 1987), our research focuses on these two OC types. We aim to understand how assembled versus unassembled OC influences consumer behavior. Specifically, we explore the effects of shifted attention and mental imagery in response to different OC presentations and consider fashion involvement as a potential influencing factor. By doing so, our study not only extends the ELM literature but also contributes to the understanding of online retail and visual merchandising. The findings offer valuable insights for online retailers seeking to optimize their visual presentation strategies and effectively engage consumers in the digital shopping environment (Zhang et al., 2023).

In the following sections, we first reviewed relevant literature and outlined the conceptual framework. We then conducted three online experiments, comparing assembled and unassembled OC. Finally, we concluded the study and presented its theoretical and managerial implications.

Literature Review

Visual outfit coordination (OC) in fashion retailing

An effective presentation of products through visual merchandising can impact consumers’ levels of pleasure, arousal, and perceived amount of information (Mehrabian & Russell, 1974). To achieve this, it is important to employ rich contextual cues (e.g., considering consumption situations or complementary items) when displaying fashion products (e.g., Baek et al., 2021). Fashion items, inherently linked to specific usage

contexts, are often paired with other pieces to form attractive ensembles. This concept, termed Outfit Coordination (OC), transcends mere aesthetics by symbolically expressing a consumer's unique identity (Sörum & Giannesch, 2023). OC involves crafting cohesive, stylish outfits and, as Wong et al. (2009) describe, harmoniously combining various fashion items. Such coordination not only aids in product evaluation and decision-making (Wu et al., 2013) but also enhances mental visualization, leading to increased sales through up-selling and cross-selling (Bolton et al., 2004; Yoo & Kim, 2012).

Studies have shown that well-coordinated outfits typically receive more positive evaluations than uncoordinated ones. However, creating effective OC requires skill and carries certain risks (Flynn et al., 1996). In traditional stores, guidance from salespersons on OC is particularly crucial for consumers who are less knowledgeable about fashion. Research in the context of brick-and-mortar stores suggests that two complementary fashion products can be displayed either separately but adjacent, or juxtaposed on a mannequin (Lam & Mukherjee, 2005). Yoo and Kim (2012) contend that coordinating complementary fashion products is advantageous, as it aids consumers in understanding the attributes and usage of the target product. Accordingly, this research proposes two common types of OC in the context of online retail, assembled and unassembled OC. Assembled OC describes visually presenting coordinated fashion items on a mannequin or model, offering a complete look. In contrast, unassembled OC displays the same items separately, laid out against a flat background, without being worn, this approach highlights each piece individually within the coordinated ensemble.

Imagery elaboration and product evaluation by the type of OC

The Elaboration Likelihood Model (ELM, Petty et al., 1981) plays a critical role in understanding consumer behavior and predicting the effectiveness of advertising (Trampe et al., 2010). ELM suggests that an individual's motivation, ability, and opportunity dictate how they cognitively process various stimuli (i.e., text and images), ultimately shaping their attitude (MacInnis & Price, 1987; Petty et al., 1981). Within this framework, mental imagery processing is identified as a cognitive mechanism where sensory representations in working memory simulate the perception of external stimuli (Goossens, 2000). This processing encapsulates how sensory and perceptual experiences are mirrored in an individual's working memory, incorporating a spectrum of ideas, emotions, and recollections (MacInnis & Price, 1987).

Applying the ELM to consumer research, it is observed that the interpretation of visual information significantly shapes consumers' cognitive responses (Oh & Jasper, 2006), thereby affecting their product expectations and decisions (Walters et al., 2007). Particularly in online fashion retailing, where physical examination (e.g., touching, feeling, or trying the product) is not possible, imagery elaboration in evaluating design and quality becomes crucial (Park & Stoel, 2002). This process involves not only imagining the product but also creating usage scenarios (MacInnis & Price, 1987). Effective in contexts ranging from visualizing garments online to experiencing brands on social media (Yoo & Kim, 2014; Ha et al., 2019), imagery elaboration leads to potent cognitive or emotional responses (Yu et al., 2017). The impact of imagery elaboration on consumer attitudes heavily leans on the product presentation strategy (Baek et al., 2021), with vivid information enhancing the effectiveness of mental imagery (McGill & Anand, 1989).

Since online consumers rely on mental imagery to envision how different items can harmonize and complement each other (Lee & Choi, 2023), OC information can directly affect the consumers' ability to engage in imagery elaboration (Zhao & Xia, 2021). For example, even in an unassembled manner, presenting OC information on one page (versus other pages) enhances mental imagery, leading to more positive evaluations (Zhao & Xia, 2021). However, products presented on models (i.e., assembled) bring more positive emotions and purchase intentions to consumers than products that are laid out flat. This is because the former provides a more realistic representation of how the apparel fits the human body and how the garment fabric drapes (Kim et al., 2009). Accordingly, we propose that presenting OC information in an assembled (vs. unassembled) manner will allow greater imagery elaboration than the unassembled method, leading to a more positive product evaluation.

H1: Assembled (vs. unassembled) OC leads to greater imagery elaboration.

H2: Imagery elaboration mediates the effect of the OC type (assembled vs. unassembled) on product evaluation.

Shifted attention and imagery elaboration

Images provide consumers with multiple sources of information during their decision-making processes, and the manner in which images are provided affects information processing (Chen-Yu & Kincade, 2001). Complex images divert individuals from focal subjects, leading to distraction (Wang et al., 2020). Consumers more fluently process information when the images are holistically processed instead of step-by-step and deliberately (Brakus et al., 2014; MacInnis & Price, 1987).

In the realm of visual marketing, product evaluations are significantly influenced by consumer attention (Clement et al., 2013; Hagtvedt & Brasel, 2017). The capture of attention impacts fundamental visual processing and perceptual experiences (Gobell & Carrasco, 2005). A key theoretical framework in this field is the Feature Integration Theory of attention (FIT, Treisman & Gelade, 1980). This theory, pivotal in perceptual and attentional studies, elucidates how individuals combine pieces of observable information about a focal object to form a comprehensive perception (Treisman & Gelade, 1980). FIT posits that focused attention is crucial in visual processing and proposes two stages of processing. Initially, in the pre-attention stage, an individual automatically concentrates on a singular, distinct attribute of the object; subsequently, in the focused attention stage, the individual integrates all observed attributes to form a holistic perception (Treisman & Gelade, 1980). While FIT has traditionally emphasized the role of visual cues like color, shape, and size in feature binding, it also acknowledges binding across spatial locations (Ramachandran, 2002). In our research, applying the principles of FIT of attention, when fashion items are displayed on a mannequin in an assembled OC or presented separately with distinct spatial locations in an unassembled OC, significantly shifts consumers' attention toward the focal product.

Attention is limited by mental resources (Sternberg, 1999). Cognitive elaboration is impacted when consumers are constrained by their attention capacity (McGill & Anand, 1989). For instance, when the visual system is unable to process all items in a scene, selective attention becomes necessary to avoid visual overload (Vecera & Behrmann, 2001). Consequently, selective attention enhances neural responses to attended

items, especially when more than two items are present, increasing the likelihood of selecting these items in subsequent choices (Janiszewski et al., 2013). Building on this research, we hypothesize that assembled OC items can reduce attention shifts compared to unassembled items, leading to greater imagery elaboration. Therefore, we propose a serial mediation through shifted attention and imagery elaboration:

H3: Shifted attention and imagery elaboration serially mediate the effect of OC type (assembled vs. unassembled) on product evaluation.

The role of fashion involvement

Fashion involvement is an important concept in marketing because it shapes consumer attitudes and responses toward fashion products (e.g., Cass, 2001). Fashion involvement refers to the extent to which an individual views his or her interest in fashion products as engaging and meaningful (O'Cass, 2004). Consumers who are highly involved in fashion tend to possess greater knowledge, which bolsters their confidence when making purchase decisions (O'Cass, 2004). According to ELM, the involvement level was defined as an individual's level of motivation to process information (e.g., advertising message) for product evaluation (Oh & Jasper, 2006). It determines the process by which the viewer forms or changes attitudes toward the product (Oh & Jasper, 2006).

People with low involvement exert minimal effort in message processing (Oh & Jasper, 2006). Those lacking prior fashion knowledge need more cognitive effort to understand relevant information (Cook, 2006). In contrast, highly involved individuals scrutinize product information more thoroughly (Oh & Jasper, 2006). They effectively integrate and connect information, leading to a comprehensive understanding (Cook, 2006). This heightened involvement leads to efficient processing of various information cues (Gitimu et al., 2013).

Based on the literature on fashion involvement and ELM, we predict that fashion involvement will moderate the effect of OC type on imagery elaboration, meaning that the difference in imagery elaboration generated by different OC types would be mitigated by an increase in fashion involvement. Accordingly, we present the following hypothesis:

H4: Fashion involvement moderates the effect of OC type (unassembled vs. assembled) on imagery elaboration, affecting product evaluation.

Below is the conceptual framework of the research (see Fig. 1).

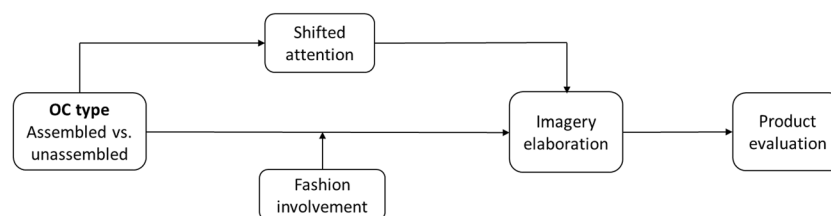


Fig. 1 Conceptual framework

Study 1: The role of imagery elaboration

Study 1 investigates the effect of OC type (assembled vs. unassembled) on imagery elaboration (H1) and its mediating role for the effect of OC type on product evaluation (H2). Study 1 uses a two-condition (OC type) between-subject design.

Methods

Stimuli

Considering that the stimuli consist of two versions of fashion coordination images focusing on women's wear, female participants were targeted in both the pretest and main study. Specifically, we selected a basic beige long coat as the focal item, and collected the relevant image and product information from an online retailer (www.revolve.com). The coat was matched with a set of fashion items (e.g., a pair of jeans, shoes, shirt, and bag). Under the assembled condition, these items were fitted onto a headless mannequin. In the unassembled condition, we located the items in a two-dimensional format, separate from the focal item. However, each item was placed in the correct place; for example, a shirt for the upper torso, a pair of jeans for the bottom, and a bag next to the hand.

To simulate the experience of online shopping, the stimuli were displayed across two distinct pages. The first page comprised product images (i.e., front, detail, and back) and accompanying information, closely mirroring a typical online product display. This was followed by a second page, which provided detailed (assembled vs. unassembled) OC, akin to style suggestions or outfit assembly ideas often seen on e-commerce platforms (see Fig. 2).

Sample and procedure

A total of 160 female participants were recruited using Amazon Mechanical Turk for a small monetary reward. After excluding those who failed the attention checks or submitted incomplete questionnaires, 126 responses were used for analysis ($N_{\text{assembled}} = 60$, $N_{\text{unassembled}} = 66$; $M_{\text{age}} = 26.47$, $SD = 6.31$; Detailed demographic information is presented in Table 1). Upon completing the consent form, the participants were randomly assigned to one of two conditions with a brief shopping scenario. After viewing the stimuli, they rated their responses on a seven-point semantic differential scale ("How do you describe the way the coordinates were presented?": scattered/combined; in pieces/in a collection; unassembled/assembled) for manipulation check ($\alpha = 0.78$). Next, the participants evaluated the focal item on another seven-point semantic differential scale ("I found this product": unfavorable/favorable; negative/positive; bad/good; $\alpha = 0.93$). Next, imagery elaboration was measured with a four-item seven-point Likert scale (1 = "Strongly disagree" to 7 = "Strongly agree") adapted from Walters et al. (2007) (e.g., "I could easily construct a story about myself wearing the item based on my mental images that came to mind."; $\alpha = 0.89$). Finally, the participants provided demographic information and were thanked.



Fig. 2 Stimuli example for women

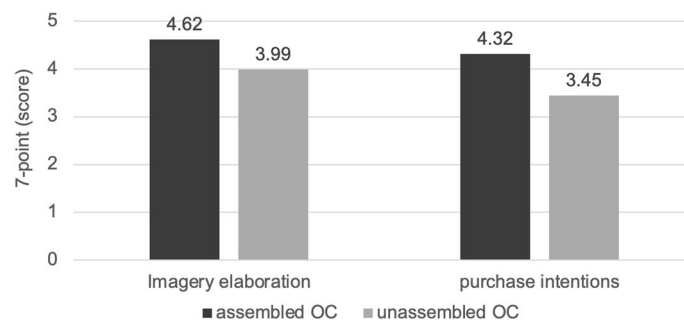
Results and discussion

The manipulation check revealed that participants in the assembled condition rated the given OC image as more assembled than those in the unassembled condition ($M_{\text{assembled}} = 6.10$, $SD = 0.16$ vs. $M_{\text{unassembled}} = 4.05$, $SD = 0.16$; $F(1, 124) = 81.80$, $p < 0.001$). Thus, the manipulation was successful.

A one-way ANOVA was conducted to test H1. Results revealed that assembled OC led to greater imagery elaboration than unassembled display ($M_{\text{assembled}} = 4.62$, $SD = 1.56$ vs $M_{\text{unassembled}} = 3.99$, $SD = 1.66$; $F(1,124) = 4.70$, $p = 0.032$), which supports H1. The significant effect were also found for purchase intentions ($M_{\text{assembled}} = 4.32$, $SD = 1.84$ vs $M_{\text{unassembled}} = 3.45$, $SD = 1.77$; $F(1,124) = 7.29$, $p = 0.008$; see Fig. 3). Next, we tested H2 by performing a mediation analysis (PROCESS Model 4; 10,000 bootstraps) with the OC type (unassembled = 0; assembled = 1) as the independent variable, product evaluation as the dependent variable, and imagery elaboration as the mediator. The results revealed a significant indirect effect of OC type on the evaluation of the focal item through the mediating role of imagery elaboration ($CI_{95\%}$ [0.017 to 0.314]). Specifically, assembled (vs. unassembled) OC led to an increase in imagery elaboration ($\beta = 0.31$, $p = 0.032$), which exerted a positive effect on product

Table 1 Demographic information of respondents

	Age		Sex		Race				
	Mean	SD		Frequency	Percentage		Frequency	Percentage	
Study 1	26.5	6.3	Female	126	100%	White/Caucasian	110	87.3%	
			Male	0	0	African American	9	7.1%	
						Hispanic	3	2.4%	
						Asian	2	1.4%	
						Other	2	1.6%	
Study 2	26.4	6.7	Total	126	100%	Total	126	100%	
			Female	196	91.6%	White/Caucasian	175	81.8%	
			Male	18	8.4%	African American	9	4.2%	
						Hispanic	15	7.0%	
						Asian	9	4.2%	
						Pacific Islander	1	0.5%	
Study 3	35.5	6.9	Other			Other	5	2.3%	
			Total	214	100%	Total	214	100%	
			Female	99	54.4%	White/Caucasian	133	73.1%	
			Male	83	45.6%	African American	17	9.3%	
						Hispanic	13	7.1%	
						Asian	17	9.3%	
			Other			Other	2	1.1%	
			Total	182	100%	Total	182	100%	
Total N= 522									


Fig. 3 The effect of OC types on imagery elaboration and purchase intentions

evaluation ($\beta = 0.65$, $p < 0.001$). These results indicate that imagery elaboration mediates the effect of coordination type on product evaluation, supporting H2.

As expected, the findings illustrate that assembled (vs. unassembled) OC positively affects product evaluation through reduced imagery elaboration. Previous research has found that online product presentations demand the attention of consumers (Kahn, 2017; Mosteller, et al., 2014), while shifting attention between focal and complementary products can influence consumption decisions (Radon et al., 2021). Accordingly, we infer that different coordination displays of fashion products may also affect consumers' attention to the focal product, which subsequently influences

imagery elaboration and product evaluations. Therefore, Study 2 was designed to test the effects of shifted attention.

Study 2: Testing the mechanism of shifted attention

The objectives of Study 2 are as follows. First, we aim to replicate the findings of Study 1 with both female and male participants (H1 and H2). Second, this study focuses on the underlying mechanism through which unassembled OC decreases imagery elaboration and positive evaluation by testing serial mediation (H3 and H4). The concept of shifted attention is introduced to explain these effects. Third, male participants are included in the study to generalize the results. This study employed a two-condition (OC type: assembled vs. unassembled) between-subjects design.

Methods

Stimuli

Considering that this study included both male and female participants, we created a compatible male-version stimulus, with a basic navy-colored coat as the focal item. We collected images and product information for men’s clothing from the same online retailer from which we sourced women’s clothing (www.revolve.com). These items are

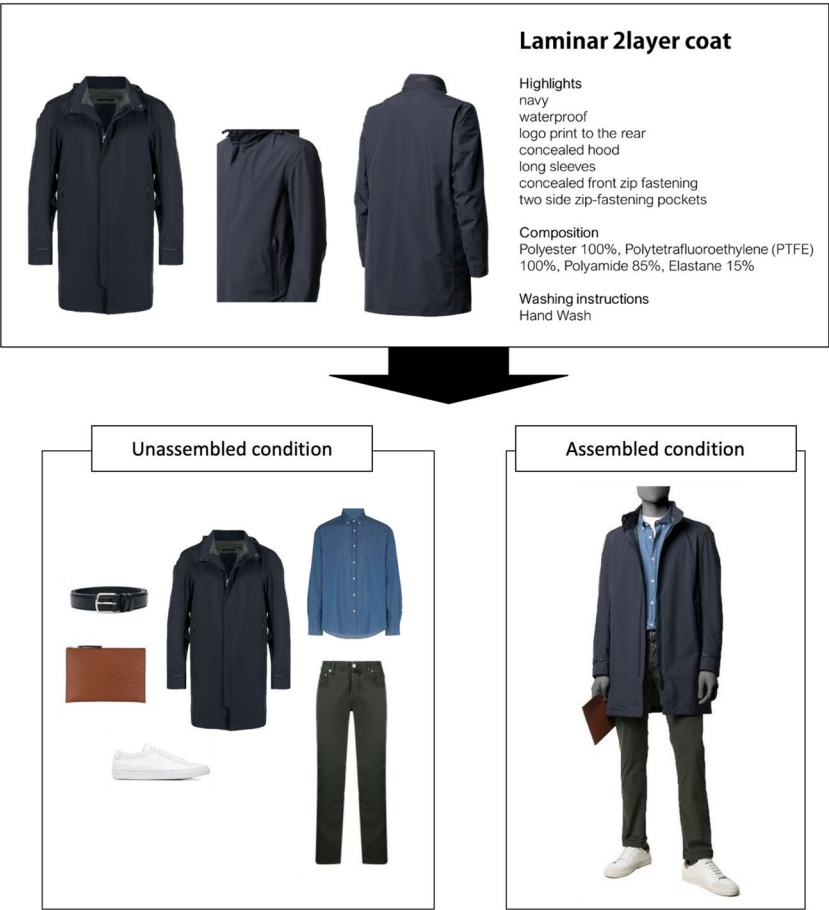


Fig. 4 Stimuli example for men

presented in either an assembled or unassembled OC (Fig. 4). For female participants, we used the same stimuli as in Study 1.

Similar to Study 1, to imitate online shopping, the stimuli were presented on two pages- a page with product images and information, followed by a page with coordination information.

Sample and procedure

A total of 259 US consumers from Mturk participated in the online experiment, resulting in 214 valid responses after excluding those who failed the attention checks or submitted incomplete responses ($N_{\text{assembled}} = 107$, $N_{\text{unassembled}} = 107$; 91.60% female; $M_{\text{age}} = 26.36$, $SD = 6.67$). Upon providing consent, the participants first indicated their identified gender, which enabled them to view the corresponding gender stimuli. Participants were then randomly assigned to one of two OC conditions (assembled vs. unassembled). After viewing the stimuli with a brief shopping scenario, they filled out a questionnaire starting from the three-item for manipulation check ($\alpha = 0.83$), followed by measures of three-item for evaluation ($\alpha = 0.91$), four-item for shifted attention ($\alpha = 0.90$), four-item for imagery elaboration ($\alpha = 0.91$), and demographics. To assess consumers' shifted attention, the items were adapted from Ketron (2018) (e.g., "I paid more attention to the other items than I did to the coat") and measured on a seven-point Likert scale. Given that there were two different stimuli according to the participants' gender, gender was included as a covariate in subsequent analyses.

Results and discussion

The manipulation check was successful, confirming that participants that viewed the assembled condition found that the OC was more assembled than those who viewed the unassembled condition ($M_{\text{assembled}} = 5.62$, $SD = 1.32$; $M_{\text{unassembled}} = 4.05$, $SD = 1.52$; $F(1, 211) = 64.46$; $p < 0.001$).

To test H3, a one-way ANCOVA was conducted with shifted attention as the dependent variable and gender as the covariate ($p = 0.811$). The analysis showed that participants in the unassembled OC condition reported higher shifted attention from the focal item than those in the assembled condition ($M_{\text{assembled}} = 3.27$, $SD = 1.59$ vs. $M_{\text{unassembled}} = 4.18$, $SD = 1.55$; $F(1, 210) = 17.83$, $p < 0.001$), supporting H3.

To test H4, serial mediation (PROCESS Model 6; 10,000 bootstraps) was conducted using OC type as the independent variable (unassembled = 0; assembled = 1), product evaluation as the dependent variable, shifted attention and imagery elaboration as the proximal and distal mediators, respectively, and gender as the covariate ($p = 0.47$). The

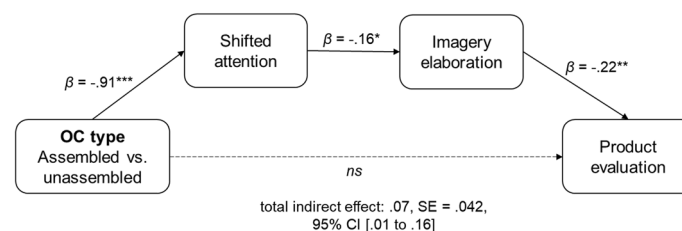


Fig. 5 Serial mediation effect

analysis revealed a significant indirect effect of shifted attention and imagery elaboration (total indirect effect: 0.07, $SE = 0.042$, $CI_{95\%} [0.01 \text{ to } 0.16]$), supporting H4 (see Fig. 5). The direct effect of the OC type on product evaluation was not significant ($p = 0.36$). Specifically, assembled (vs. unassembled) OC negatively affected shifted attention ($\beta = -0.91$, $SE = 0.22$, $t = -4.23$; $p < 0.001$), and shifted attention also negatively influenced imagery elaboration ($\beta = -0.16$, $SE = 0.07$, $t = 2.12$; $p = 0.028$). In product evaluation, shifted attention and imagery elaboration remained significant in different directions. Product evaluation was negatively influenced by shifted attention ($\beta = -0.22$, $SE = 0.05$, $t = -4.22$; $p < 0.01$) and positively influenced by imagery elaboration ($\beta = 0.48$, $SE = 0.05$, $t = 9.93$; $p < 0.01$). Furthermore, the indirect effect of the path that only included the first mediating variable, shifted attention, was also significant (indirect effect: 0.19, $SE = 0.07$, $CI_{95\%} = [0.07 \text{ to } 0.36]$), whereas the indirect effect of the path that only included the second mediator, imagery elaboration, was not significant (indirect effect: 0.05, $SE = 0.11$, $CI_{95\%} [-0.17 \text{ to } 0.27]$). The serial mediation was not significant when the order of the two mediators was reversed (total indirect effect: 0.01, $SE = 0.01$, $CI_{95\%} [-0.003 \text{ to } 0.03]$).

Study 2 successfully underscored the negative effect of unassembled (vs. assembled) OC on product evaluation. When the items were scattered, the participants' attention was distracted by the pieces, which prevented them from focusing and elaborating on the focal product. Although our findings replicated the finding that unassembled (vs. assembled) OC brings negative outcomes, a question arises as to whether this is always true regardless of the individual. Study 3 was designed to test the potential boundary conditions for fashion involvement.

Study 3: The moderating effect of fashion involvement

The main purpose of Study 3 is to test the moderating effect of fashion involvement on the relationship between OC type and evaluation (H4). Study 3 included male participants to generalize the findings. We employed two-condition (OC type: assembled versus unassembled) in a between-subjects design.

Methods

Sample and procedure. Using Mturk, 200 participants were recruited, providing 182 ($N_{\text{assembled}} = 92$, $N_{\text{unassembled}} = 90$; 54.4% female; $M_{\text{age}} = 35.56$, $SD = 6.9$) valid responses for the analysis. After confirming participation in the experiment, stimuli corresponding to the clothing conditions of men and women were presented according to the gender of the participants. Participants were randomly assigned to one of two conditions. After viewing the product image and information followed by the stimuli, participants were asked to respond using a three-item for manipulation check ($\alpha = 0.926$), three-item for product evaluation ($\alpha = 0.963$), four-item for imagery elaboration ($\alpha = 0.961$), and five-item for fashion involvement ($\alpha = 0.975$; O'Cass, 2000) on a seven-point Likert scale. Finally, the basic demographic questions were presented.

Results and discussion

The analysis results of the manipulation check were successful, showing that fashion items were viewed as more combined in the assembled condition than in the

unassembled condition ($M_{\text{assembled}} = 5.85$, $SD = 1.12$; $M_{\text{unassembled}} = 4.63$, $SD = 1.95$; $F(1, 180) = 26.75$; $p < 0.001$).

To test H4, a moderated mediation (PROCESS Model 7; 10,000 bootstraps) was conducted. In this model, the OC type was the independent variable, evaluation was the dependent variable, imagery elaboration was the mediator, fashion involvement was the moderator, and gender was included as a covariate. The indirect effect of OC type on evaluation through imagery elaboration was significant ($\beta = -0.15$, $SE = 0.07$, $CI_{95\%} [-0.290, -0.014]$), with a significant interaction between coordination and fashion involvement in imagery elaboration ($\beta = -0.28$, $SE = 0.12$; $t = -2.35$, $p < 0.05$). Additionally, the main effect of display type on imagery elaboration was significant ($\beta = 1.149$, $t = 2.16$, $p < 0.05$), revealing that assembled OC evokes more imagery elaboration than unassembled OC. Furthermore, a floodlight analysis was performed to verify the range of fashion involvement levels for which the simple effect of display type on imagery elaboration was significant. As a result of confirming the JN-point, imagery elaboration was higher for the assembled than unassembled OC condition when consumers' fashion involvement was less than 1.36. Conversely, when consumers' fashion involvement was greater than 6.80, imagery elaboration was higher for unassembled than assembled OC condition (see Fig. 6).

Supporting H4, Study 3 successfully examined the moderating role of fashion involvement in the relationship between OC type and imagery elaboration. The results revealed an opposite effect depending on the individuals' levels of fashion involvement. Specifically, when consumers' fashion involvement was low (less than 1.36), the assembled displays resulted in higher imagery elaboration and favorable product evaluations. Conversely, when fashion involvement was high (greater than 6.80), unassembled OC led to higher imagery elaboration and more positive product evaluations. Adopting the concept of message-processing involvement from prior ELM studies, involvement level was defined as an individual's motivation to process information for product evaluation (Oh & Jasper, 2006). Participants with higher fashion involvement demonstrate greater

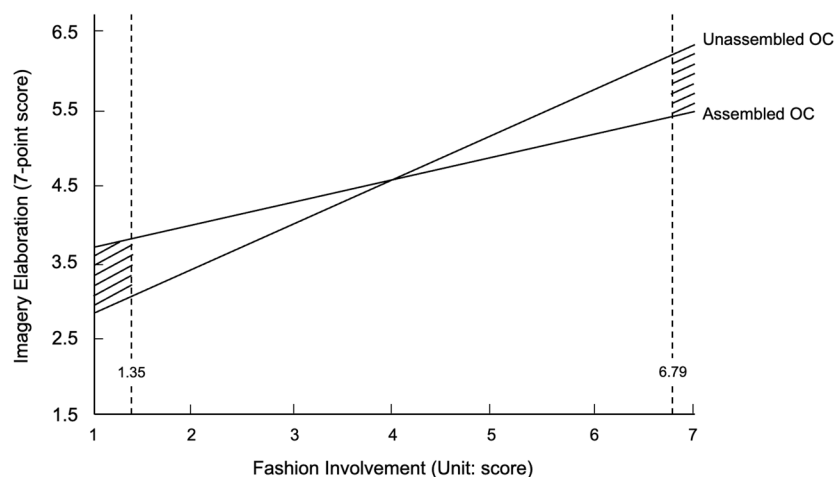


Fig. 6 The moderating effect of fashion involvement for the effect of OC type on the imagery elaboration. The shaded region denotes the area within which the effect of OC type on imagery elaboration is statistically significant

motivation to process information in OC. This heightened motivation enables them to process and elaborate mental imagery effectively, even when the items are presented in an unassembled OC format. Conversely, participants with lower fashion involvement and reduced processing motivation find assembled OC more accessible, as it requires less effort for imagery elaboration. This is because an assembled OC inherently leads to more elaboration than an unassembled one (H1). As a result, assembled OC tends to receive more favorable elaboration among participants with lower levels of fashion involvement.

Discussion

Theoretical implications

The proliferation of online retailing has garnered considerable attention among researchers (Mu et al., 2020; Ramkumar & Woo, 2018; Singh & Basu, 2023). This study contributes to online fashion retailing literature by comparing the effects of assembled and unassembled OC, which are common practices that are underexplored in academia. Recent research has demonstrated that presenting complementary fashion items together on the same page (versus each item on a separate page) leads to more positive evaluations (Zhao & Xia, 2021). This study further extends the findings by suggesting that, even on the same page (“joint presentation” in Zhao & Xia, 2021), when complementary items, are assembled as OC presentations, consumers generate greater imagery elaboration and evaluate the products more positively than when the OC presentations are fragmentedly unassembled. This result is aligned with that of Kim et al.’s (2009) study on the detriments of flat product presentation compared to products presented on human models.

Adding on the ELM of attention (Petty et al., 1981), our investigation provides insights into the mental imagery literature, revealing the underlying mechanism through which consumers’ shifted attention lowers imagery elaboration. Several scholarly attempts have been made to lessen the attention shift in consumer studies (e.g., Bi et al., 2021). In fashion retail, using social robots in a store as an innovative type of mannequin in visual merchandising can increase attention toward clothes and prioritize buying clothes (Zibafar et al., 2021). However, with no tangible objects on-site, online shoppers tend to rely on imagery elaboration when evaluating the design and quality of apparel (Park & Stoel, 2002). Previous studies on mental imagery have mostly focused on stimuli features (e.g., vividness, Berger & Gaunitz, 1977) or individual characteristics (VVIQ, Takahashi et al., 2023). Our findings extend previous research by exploring the impact of assembling items on a mannequin versus presenting them unassembled on a flat screen, while keeping the consisting items identical.

Furthermore, we enhance the body of featured integration theory (FIT, Treisman & Gelade, 1980) literature by showcasing the mediating role of shifted attention on elaboration across varying visual presentation formats. According to FIT of attention, searching for a conjunction target involves a serial search process: if an item is identified as not being the target, the search methodically progresses to the next item (Treisman & Gelade, 1980). Applied to our research, in an unassembled scenario where individuals are seeking more than a single feature, the focal product no longer “pop out” prominently among other fashion items. Therefore, individuals must look at each object (i.e., fashion item) in turn and use attention to glue the features together (Treisman & Gelade,

1980). Finally, this research significantly enhances the fashion marketing and visual communication literature by comparing assembled vs. unassembled outfit coordination (OC). Building on previous studies that highlighted the impact of visual elements, such as the use of robotic mannequins (Zibafar et al., 2021) and warm store designs (Baek et al., 2021), our study extends these insights to online fashion retailing. It reveals that the OC format of complementary products influences product evaluation through imagery elaboration. Interestingly, this research explores the role of fashion involvement, a crucial factor in consumer behavior. We discovered that while assembled OC is more effective for consumers with lower fashion involvement, those with high fashion involvement show increased imagery elaboration with unassembled OC. This suggests that the level of fashion involvement influences how consumers process visual information in OC, contributing insights to the understanding of fashion involvement and the dynamics of different OC types.

Managerial implications

The inherent disadvantage of online shopping lies in its low sensory input, with research indicating a lack of emotional involvement compared to brick-and-mortar stores. This leads to a dominance of cognitive processes in consumer decision-making (Pappas et al., 2016). Our research highlights the fact that the OC presentation of products significantly influences how consumers process information and evaluate products. These findings offer valuable insights for online fashion retailers and website designers seeking to optimize their OC presentation strategies. First, a fashion retailer's website should showcase outfit sets featuring coordinated tops, bottoms, and accessories, all of which are assembled on a mannequin. Based on the findings of Study 1, this approach helps consumers generate greater imagery elaboration regarding how the outfit would look at them. This will subsequently improve product evaluations.

Next, it is crucial for website designers to prioritize the main product as the central focus of online presentations, while minimizing distractions that could divert consumers' attention. The findings from Study 2 showed that, for unassembled OC presentation, consumers' attention shifted more than with assembled OC. This negatively impacted their imagery elaboration and lowered product evaluations. Therefore, retailers and designers should carefully choose the OC method when displaying garments or accessories. As a general guideline, designers are advised to direct consumer attention toward a focal product using assembled OC.

Most notably, Study 3 indicated that the unassembled OC type is not always negative. Our findings underscore the importance of individual differences (e.g., fashion involvement) when presenting OC in online retail settings. Interestingly, for fashion-forward and highly involved consumers, providing unassembled OC presentations leads to increased imagery elaboration compared to assembled OC. This might be because unassembled OC caters to their desire for creative styling choices for each item, which go beyond the outfits suggested by retailers. Therefore, as a stylish designer brand targeting niche consumers with high fashion involvement, marketers can consider presenting unassembled OCs, allowing highly involved customers to explore different combinations of garments. However, for mainstream brands that cater to general consumers with low

fashion involvement, it is highly advisable to present fashion items assembled on a mannequin to showcase the total full look.

Limitations and future research

This study has several limitations that suggest future research directions. First, assembled and unassembled OC methods do not necessarily appear separately. Although we treated them separately to robustly examine the differences between them, in practice, they could also be successively presented through two images of the same focal product on a single webpage. To gain further insights, researchers could explore whether presenting both methods in succession is more conducive to consumers' imagery elaboration than using either method independently, and whether the sequence of presentation plays a role in shaping consumers' perceptions and responses.

Second, it is important to consider that OC type might have other effects on consumers beyond product evaluation. For example, a nudge in the visual presentation of products (i.e., alteration in interstitial space) can influence the aesthetic appeal and perception of prestige (Sevilla & Townsend, 2016). The distinction between assembled and unassembled OC displays may also impact consumers' valuation of products, subsequently influencing behavioral outcomes, such as willingness to pay (WTP).

Third, future research could identify moderators other than fashion involvement that can overcome the reduced imagery elaboration brought about by unassembled coordination for consumers, suggesting that unassembled OC is not always bad. Baek et al. (2021) have demonstrated that consumers' processing styles (global versus local) moderate the effect of visual contextual cues on imagery elaboration. Examining such individual perceptual differences can help generalize the effects of assembled and unassembled presentations beyond the field of fashion OC. Additionally, considering that the effect mechanism involves cognitive processes such as shifted attention and imagery elaboration, and given that cognitive load has been shown to influence visual attention (Wang et al., 2014) and consumer decision behavior (Drolet & Frances Luce, 2004), it may also act as a moderator affecting consumers' product evaluations across different OC types.

Fourth, although assembled and unassembled display methods are commonly used in online fashion stores, future studies should consider diverse types of OC displays in the context of online retailing. With advances in 3D technologies, online retailers can display products in 3D interactive formats (e.g., 360-interactive display) or display their products in a virtual world. While these retailers try to provide product information more sensorily, similar to those in a physical store, there remains a limitation because consumers cannot physically try-on a product and consequently need imagery elaboration before purchasing it. In such circumstances, future scholars can consider the best OC display to effectively help consumers generate imagery elaboration without being overwhelmed by sensory information.

Author contributions

EB came up with the idea, carried out the experiments, and analyzed the data. YQ wrote the first draft of the article and interpreted the results, and EB supervised the process. Both authors contributed to the formatting and editing of the manuscript and have read and approved the final manuscript.

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Availability of data and materials

The datasets generated and/or analyzed as part of this study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This research was conducted under the approval of The Hong Kong Polytechnic University Institutional Review Board (IRB Approval No: HSEARS20230718003) regarding ethical issues, including consent to participate.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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