

# Effects of Advertising Characteristics, Mental Simulation and Self-brand Connections on Purchase Intention

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## Abstract

**Purpose:** This paper aims to investigate whether consumers' mental simulation and self-brand connections influence purchase intention and how the characteristics of advertisements' nonverbal information (congruence among multisensory cues) and verbal messages (self-referencing point and narrative structure) jointly shape mental simulation and self-brand connections. **Research design, data and methodology:** This paper develops a sportswear advertising and totally collected 225 data through the online survey platform "WenJuanXing". To exam the hypotheses in this paper, structural equation model is conducted in AMOS 21.0 via using 210 valid data. **Results:** The findings reveal that consumers who engage in mental simulation or establish the connections between them and the brands are more likely to present high purchase intention. Moreover, the characteristics of congruence among multisensory cues, self-referencing points and narrative structure can not only facilitate consumers' mental simulation but also encourage consumers to create connections between them and the brands. **Conclusions:** This paper develops the advertising research via exploring the characteristics of advertisements' nonverbal information (multisensory cues) and verbal messages simultaneously. And suggesting that both of consumers' mental simulation and self-brand connections are the important approaches for advertisers to effectively increase consumers' purchase intention. Finally, the limitations and suggestions are concluded for the future research.

**Keywords :** Advertising Characteristics, Mental Simulation, Self-brand Connections, Purchase Intention

**JEL Classification Code:** C83, L81, M31, P46

## 1. Introduction

For marketers, grasping how consumers elaborate external information, such as advertisements, can effectively promote the communications between them and consumers, which leads to increased purchase intention (N.-H. Choi,

Liu, & Li, 2018; Lacroix, Rajaobelina, & St-Onge, 2020; OH & Park, 2020; Stewart, 1998). In particularly, one stream of researchers have empirically demonstrated that consumers who depend on the stimulated imaginative visioning which can be considered as mental simulation, to predict and evaluate the outcomes of the products use in the future, are more likely to engage in consumption behaviors (Muñoz-Vilches, van Trijp, & Piqueras-Fiszman, 2019; Yim, Kim, & Lee, 2020). And another stream of research investigates that making the deep connections between consumers and brands can not only increase consumers' behavioral outcomes but also can buffer the brand dilution effect of conspicuous brand usage (Escalas & Bettman, 2003; Ferraro, Kirmani, & Matherly, 2013).

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However, research on the relationship between mental simulation and self-brand connection remains fragmented. Thus, to fill this gap, this paper aims to explore how consumers' purchase intention is shaped by consumers' internal mechanism via innovatively bring these two streams of mental simulation and self-brand connections research together.

Although it is common to notice that an advertising consisting of verbal messages and nonverbal information (multisensory cues), these verbal and nonverbal information has not been treated as an equal in the field of advertising research for a long time (Stewart, 1998). Until recently, the significant effect of nonverbal information on arousing consumers' emotional and behavioral responds has been demonstrated (Choi, Qiao, & Wang, 2020; Schreuder, van Erp, Toet, & Kallen, 2016). Moreover, given the important scholarly and practically meaningful of mental simulation, literatures have documented a range of interesting effects and psychological processes indicating that mental simulation is evoked by external verbal/nonverbal information, such as self-referencing points (Yim et al., 2020); the visual product depictions within the advertising (Elder & Krishna, 2012); haptic cues and the level of ambiguity of the context (Spears & Yazdanparast, 2014). Similarly, self-brand connections research has indicated that advertising is an effective strategy for marketers to establish the connections between consumers and the brands (Escalas, 2004b). Thus, this paper highlights the effect of advertising on mental simulation and self-brand connections via focusing on both nonverbal information (multisensory cues) and verbal information (ad messages) simultaneously.

Taken together, one of the purpose of this paper is exploring whether consumers' mental simulation and self-brand connections positively affect purchase intention. Another is exploring how the characteristics of nonverbal information (multisensory cues) and verbal information (ad messages) give rise to mental simulation and self-brand connections.

## 2. Theoretical Background and Hypotheses

### 2.1. Mental Simulation and Self-brand Connections

#### 2.1.1. Mental Simulation

Mental simulation refers to the representations of experiences which imagined or anticipated in individuals' brains depending on their previous experience and incoming information (Kappes & Morewedge, 2016; M. P. Taylor & Sarno, 1998). Specifically, mental simulations

may be regarded as the engine of imagination that transmits individuals to any tense where they want to go, past, present or future. Besides tense, mental simulation still has another two characteristics: direction and structure (Markman, Klein, & Suhr, 2012). In the context of directional characteristic, mental simulation can be divided into downward simulations and upward simulations according to the deviations between actual or desired reality and imagination (Markman, Gavanski, Sherman, & McMullen, 1993, 1995). In the downward simulation, individual imagines a worse outcome than is actually or expected, usually accompanied by the negative emotions, while in the upward simulation, individual changes the outcome which better than the one obtained or anticipated, usually along with positive feelings (Roese, 1994). Structure refers to the way how individuals restructure the elements or conditions to achieve their desired outcome. Sometimes, individuals insert some conditions in their imagination (e.g., imagine doing more exercise) which can be regarded as additive mental simulation, while sometimes, individuals delete some conditions in their imagination (e.g., imagine not eating dessert) which has been seen as subtractive mental simulation (Markman et al., 1995; Roese, 1994).

According to these characteristics of mental simulation, it is necessary to note that marketers have shown great interest in consumers' mental stimulation and documented many theoretical and empirical findings that consumers who imagine the "future consumption of a yet-to-be-purchased product" will present higher purchase intentions and evaluations versus consumers who do not engage in the mental simulation (Elder & Krishna, 2012; Markman et al., 2012; Zhao, Hoeffler, & Zauberaman, 2011). In particular, the positive impact of mental simulation on consumer purchase intention has extended to a new product (Zhao et al., 2011). Therefore, we propose the hypothesis:

**H1:** Mental simulation positively affects purchase intention.

#### 2.1.2. Self-brand Connections

Self-brand connections have been defined as a set of association between brand and the self (Escalas, 2004a; Escalas & Bettman, 2003). Specifically, possessing the brand is the way for a consumer to satisfy his or her internal needs including his/her self-identities' constructions and self-expressions (Escalas, 2004b). This is also in line with the self-expansion research (Belk, 1988). From the perspective of psychology, Aron and Aron establish the self-expansion model to explore how individuals think, feel and act in the close relationships and

indicate that one of a person basic motivation is to expand the self (Aron & Aron, 1996). In terms of marketing perspective, consumers' choice of brands is deeply shaped by the associations they connect to the brands (Escalas & Bettman, 2003). For example, the high self-brand connections serve as a buffering role in the negative effect of conspicuous usage on the consumers' attitudes (Ferraro et al., 2013). Moreover, even receiving the negative brand information, consumers with higher self-brand connects are more likely to forgive the brand failure versus consumers with lower self-brand connections (Cheng, White, & Chaplin, 2012). Thus, we propose the hypothesis:

**H2:** Self goal-achievement emotions will positively affect purchase intention.

### **2.1.3. Effect of Mental Simulation on Self-brand Connections**

As mentioned previously, mental simulation gives the way for consumers to vision their future events, especially how do they consume the products that have not been purchased in the real life (Elder & Krishna, 2012). Which means, in the process of mental simulation, a consumer will recall some related episodic memories or experience and then incorporate these aroused memories or experience with external stimulus, such as an advertising, which finally lead to the various mental imageries concerning using the products in the future (Yim et al., 2020). Thus, mental simulation encourages consumers to create various relationships between them and the products or brands. What's more important, psychological research indicates that following mental simulation, consumers are more likely to trust their imagined events (S. E. Taylor, Pham, Rivkin, & Armor, 1998). That is to say, consumers who engage in the mental simulation are more likely to believe the relationships between them and the products or brands that is established in their imageries. In another words, following mental simulation, consumers are more likely to establish and trust the self-brand connections between them and the brands. Therefore, we propose the hypothesis:

**H3:** Mental simulation will enhance self-brand connections.

## **2.2. Characteristics of the Advertising**

### **2.2.1. Nonverbal and Verbal Information**

Advertising, as an effective and the most popular strategy for marketers to communicate with consumers, has always been a hot topic in the marketing research (Lacroix et al., 2020; Yim et al., 2020). To explore how the advertising gives a rise to the consumers' downstream consequences including attitudes and behaviors, some

research focus on the verbal information, such as messages' type (Zarantonello, Jedidi, & Schmitt, 2013), messages' frames (Olsen, Slotegraaf, & Chandukala, 2014), or the role of text messages in the mobile electronic commerce (e.g., SMS) (Rettie, Grandcolas, & Deakins, 2005). Some research gives more weight on the impact of nonverbal information (multisensory cues), such as, the characteristics of multisensory cues (Choi et al., 2020), the integrated effect of multisensory cues (Schreuder et al., 2016) or the single effect of one of the multisensory cues (Elder & Krishna, 2012). Only a few of research emphasize the interaction effect of verbal and nonverbal information in delivering the advertising (Peck & Wiggins, 2006). Therefore, this paper highlights the combination of nonverbal information (multisensory cues) and verbal information (messages) via focusing on the characteristics of them separately.

### **2.2.2. Characteristics of the Nonverbal Information (Multisensory Cues)**

#### **2.2.2.1. Congruence among Multisensory Cues**

Recently, marketing research has placed more weight to exploring the impact of inputting multisensory cues on consumer consumption behaviors (Choi et al., 2020; Schreuder et al., 2016). Compared to the independent effect or the characteristics of one of the five sensory modality (Elder & Krishna, 2012), such as audition, vision, or touch, sensory research has theoretically and empirically revealed that cues from these five sensory modalities are integrated with each other which result in the various integrated effect among each other (Schreuder et al., 2016). And, the available sensory literatures suggest that one of a basic but important characteristics of the multisensory cues is congruency which can finally enhance the positive effect of multisensory cues on consumers' emotional and behavioral outcomes (Choi et al., 2020; Schreuder et al., 2016; Van Ee, Van Boxtel, Parker, & Alais, 2009). To be more specifically, compared to the incongruent multisensory cues, congruent multisensory cues not only can decrease consumer cognitive energy but also can facilitate consumer more related emotions (Gerdes, Wieser, & Alpers, 2014). Thus, consumers are more likely to present responds to congruent multisensory cues quickly, fluently and positively, versus incongruent multisensory cues (Schreuder et al., 2016). In lined with economics research, compared to congruent multisensory cues, incongruent multisensory cues are more likely to increase stimulus uncertainty and then require consumers to invest more cognitive efforts to process cues, leading to more negative effect on consumer consumption behaviors (Gerdes et al., 2014).

### **2.2.3. Characteristics of the Verbal Information (Messages)**

#### **2.2.3.1. Verbal Self-referencing Points**

Consumers are more likely to recall some self-relevant information which is stored in their memories when they are exposed to the advertisements with the self-referencing points, and then show higher purchase intentions (Bosmans, Kenhove, Vlerick, & Hendrickx, 2001; Yim et al., 2020). Specifically, self-referencing encourages consumers to elaborate the inputting information by comparing and connecting the information to their related memories coded in their brains (Phillips, 1996). According to the cognitive psychological research, the self, as a powerful and complex memory, leads to the self-generation procedure (Greenwald & Banaji, 1989). Which means, consumers who engage in the self-referent processing can identify the product quickly and recall the brand information clearly, resulting in the positive brand attitudes and enhanced consumption behaviors (Escalas, 2007). Although, other research reveals that self-referencing can hurt persuasion when consumers receive too much self-referencing cues from the advertisements (Burnkrant & Unnava, 1995), most marketing research has provided that self-referencing has a positive impact on consumer consumption behaviors (Bosmans et al., 2001; Escalas, 2007; Yim et al., 2020).

Self-referencing points also can be categorized into verbal and nonverbal (Yim et al., 2020). Verbal self-referencing points refers to the messages that contains “You”, such that “Is this your new iPhone X?” (Lai & Farbro, 2014). And nonverbal self-referencing points refers to the visual images that contain body parts, such as hand. In this paper, we highlight the verbal self-referencing points because of the characteristics of obviousness and immediacy of the verbal effect.

#### **2.2.3.2. Narrative Structure**

Narrative transportation theory has demonstrated that consumers’ attitudes and intentions can be heavily predicated by the messages presented via the narrative structure (Green & Brock, 2000). Given the important impact of this type of the messages, scholars have systematically unpacked and documented the characteristics of the whole structure of narrative (Escalas, 2007; Van Laer, De Ruyter, Visconti, & Wetzels, 2014). More specifically, narrative advertising presents the product information by a story-like format as well as conveys the detailed information depending on the event actions, setting and characters (Polyorat, Alden, & Kim, 2007). Which means, like a story, narrative ad messages imply some essential factors: the plot, the arrangement or construction of a series of events; the characters, the fictitious or real characters in the plot ; the climax, the

decisive moment in a novel and the outcome or the end state of the plot (Green & Brock, 2000; Van Laer et al., 2014). Based on these essential elements, narrative advertisements are commonly interesting and contextually.

Moreover, Van Laer and De Ruyter suggest that narrative structure can rebuild consumers’ confidence in companies which finally results in enhanced consumption behaviors (Van Laer & De Ruyter, 2010).

#### **2.2.4. Effect of Characteristics of Advertising on Mental Simulation**

Neuropsychological research has indicated that congruent multisensory cues increase activation in the brain regions without too much cognitive controls which lead to more internal assessment and episodic memories rather than the semantic memories (Watson et al., 2013). Which means, the more episodic memories consumers’ retrieved from the past experiences, the more various imageries consumers can mentally construct. Thus, compared to incongruent multisensory cues, congruency among cues from different sensory modalities is more likely to facilitate consumers’ mental simulations.

Consumers who are exposed to the Self-referencing points are more likely to be motivated consciously or unconsciously to invest more mental energies to elaborate the inputting information and recall the more personal relevant experiences as more as possible (Phillips, 1996). That is to say, relying on the retrieved related personal information from the brains, consumers with high personal involvement into processing inputting information will imagine different situations or occasions in which they will consume the products and how they use the products. Thus, self-referencing points can not only help consumers learn and interpret the external information but also can evoke their mental simulations.

Moreover, researchers have demonstrated that mental simulations can be instructed and usually appear in the process of narrative or the form of stories (Muñoz-Vilches et al., 2019; Yim et al., 2020). That is to say, consumers who are exposed to the narrative will concentrate on the goals, outcomes and special behaviors by imaging themselves as the characteristics in the stories or narratives forwardly (Escalas, 2004a). According to the Elaboration Likelihood Model (ELM), narrative processing persuades consumers by transportation, which is defined as “immersion into the text” (Green & Brock, 2000; Petty, Cacioppo, & Schumann, 1983). So, consumers will be easily drawn into the narrative structures, especially imagining the similar plots as the characters did in the narrative. Therefore, we propose the following hypotheses:

**H4a:** Congruence among multisensory cues will induce mental simulation.

**H4b:** Verbal self-referencing point will induce mental simulation.

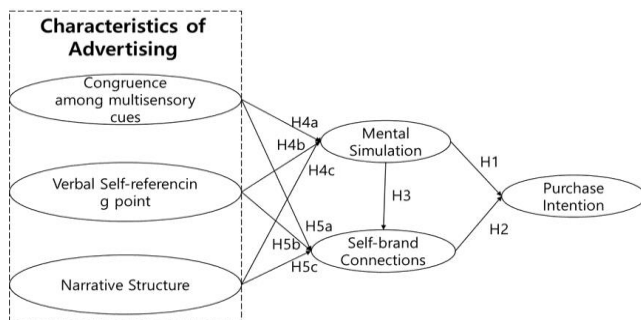
**H4c:** Narrative structure will induce mental simulation.

**2.2.5. Effect of Characteristics of Advertising on Self-brand Connections**

As we mentioned before, compared to incongruent multisensory cues, congruent multisensory cues have a positive impact on consumers’ downstream consequences including emotional and behavioral outcomes because the high degree of the certainty presented by the congruent multisensory cues can induce consumers’ more emotional responds but reduce their explorative behaviors within cognitive control (Gerdes et al., 2014); and the process that assessing the external stimulus will not be easily disturbed by the congruent versus incongruent multisensory cues but incongruent multisensory cues (Schreuder et al., 2016). Thus, compared to incongruent multisensory cues, congruent multisensory cues encourage consumers to establish the connections between them and the brands rather than interrupt the connections.

Self-referencing points motive consumers to process the inputting information via comparing the inputting information to the self-relevant memories or experiences recalled by the inputting information (Escalas, 2007). Which means, consumers who are encountered to an advertising with the self-referencing points will retrieve the related personal past experiences in their memories and then elaborate these self-relevant experiences to the product or brand which is showed in the advertising, finally leading to the various self-brand connections.

In sum, all the hypotheses can be delineated by < Figure 1 >.



**Figure 1:** Research Model

Finally, in terms of narrative structure characteristic of an ad, it is common for consumers to feel lost in this category of the ad. To be more specifically, the structure of narrative attracts consumers to image themselves in the different situations following the change of time and causality in the narrative (Escalas, 2004b). Following the

narrative structure ad, consumers who lost in an advertising are more likely to establish the relationships between them and the brands, like the character in an advertising. Therefore, we propose the following hypotheses:

**H5a:** Congruence among multisensory cues will enhance self-brand connections.

**H5b:** Verbal self-referencing point will enhance self-brand connections.

**H5c:** Narrative structure will enhance self-brand connections.

**3. Empirical Study**

**3.1. Product Selection for Empirical Study**

In order to explore whether consumers’ mental simulation and self-brand connections can be shaped by the advertisings, this paper firstly needs to select the kind of products or services with multisensory cues as well as their advertising messages can be constructed into narrative structure and contain the self-referencing points. Then, we conducted a pretest relying on the previous researches (Cheng et al., 2012; Choi et al., 2020; Escalas, 2004b, 2007; Polyorat et al., 2007). Specifically, we identified three categories of the products/services (i.e., sportswear, cell phones and sunglasses) which were adopted commonly in the previous researches and then required 50 participants to choose one of the product/service following the question “which kind of product/service with various sensory cues and can make you perceive the self-referencing point and stories from its’ advertisings?”. And the frequency analysis results indicated that compared to cell phones (20%) and sunglasses (16%), sports products (64%) can be adopted in our empirical study.

**3.2. Advertisement Development**

Based on the pretest results, this paper decided to design a sportswear advertisement which belongs to the category of the sports product but is different from the products in the previous research. In the nonverbal information section, in order to emphasize the visual and auditory cues, we decided to develop a short video through consisting the six pictures which are taken from the “It’s right to be afraid” video (<https://www.youtube.com/watch?v=u0WR27pJm4I&t=109s>), and adding a small piece of pure music intercepted in the song “Star sky”, as the background music in this sportswear advertising, because its’ impassioned melody can heavily stimulate consumers to recall the relevant emotional experiences. In terms of characteristics of verbal information, stemming from the



self-referencing and narrative research, we developed the sportswear advertising messages via transforming “K brand”, a fictive brand to avoid the brand name bias, into “you” as well as considering the three elements in the narrative structures, as follows “*This is your first time at the gym. You are so nervous and afraid, especially afraid others’ sights. However, compared to being stared oddly by others, you are more afraid that you will always settle for mediocrity. This time, you just want to challenge yourself. You try again and again, as well as tell yourself just keep doing. And you know K will still accompany you until you meet a better yourself*” (Escalas, 2004a, 2004b; Yim et al., 2020).

To strengthen the participants’ impressions, we presented six pictures in the questionnaire. And these pictures were used as follows, the first with “at first”, the second with “so afraid”, the third with “afraid others sights”, the fourth with “keep doing”, the fifth with “try again” and the last with “meet better me” and a virtual brand name “K” are shown in the questionnaire. Participants were asked to click <https://v.qq.com/x/page/b3233snahua.html> to browse the advertisement.



Source: <https://v.qq.com/x/page/b3233snahua.html>

Figure 2: Research Advertisements

### 3.3. Measures of Configuration Concepts

To explore whether participants sense the multisensory cues from the sportswear advertising, all the participants were asked to answer the three questions, “1. I sense the various color of this sportswear advertising”, “2. I sense the various tactility of this sportswear advertising” and “3. I sense the dynamic melody sound in this sportswear advertising” via 7-point scale (1=not at all, 7= very much), after viewing the short video and advertising messages. It was worth noting that these questions were only conducted to check whether participants sense the cues from different sensory modalities rather than only one modalities which not included in our research model. Moreover, we also measured the participants’ attention levels by the question

“I pay much attention to this sportswear advertising” on 7-point (1=not at all, 7= very much).

#### 3.3.1. Measures of Congruence among Multisensory Cues (CMC)

Congruence among multisensory cues were measured by four-item on 7-point semantic differential scale adopted from the Choi et al., (Choi et al., 2020) and Watson et a., (Watson et al., 2013). Four items are “1. All the visual, tactual and sound cues of this sportswear advertisement are appropriate to each other.” “2. All the visual, tactual and sound cues of this sportswear advertisement fit with each other.” “3. All the visual, tactual and sound cues of this sportswear advertisement are consistent with each other.” “4. I think all multisensory cues from this sportswear advertisement are congruent with each other.” (1=not at all, 7= very much).

#### 3.3.2. Measures of Verbal Self-referencing Points (SRP)

Based on the definition of the self-referencing points indicating that consumers who are exposed to the external stimulus with self-referencing points will arouse various related personal memories (Escalas, 2007; Phillips, 1996; Yim et al., 2020), this paper developed four items to measure self-referencing points. They are “1. I recalled the similar experiences after viewing the K brand’s advertising.” “2. I recalled the something that I am afraid but still want to change, after viewing the K brand’s advertising.” “3. I recalled the similar feelings after viewing the K brand’s advertising.” “4. I recalled some of my previous experiences of persevering, after viewing the K brand’s advertising” which are scored on 7-point scale (1=not at all, 7=very much).

#### 3.3.3. Measures of Narrative Structure (NS)

Based on the three elements in narrative structure, advertising research also emphasizes the similar important elements into narrative advertisings: chronology, causality and character development (Stern, 1994). Given the importance of these three elements, narrative structure was measured by four-item on 7-point scale (Escalas, 2004b). These questions are “1. Does this ad consist of actors engaged in actions to achieve goals?”, “2. Does this ad provide you with insight about the personal evolution or change in the life of a character?”, “3. Does this ad explain why things happen, that is, what caused things to happen?” and “4. Does this ad have a well-delineated beginning (initial event), middle (crisis or turning point) and ending (conclusion)?” (1=not at all, 7= very much).

#### 3.3.4. Measures of Mental Simulation (MS)

Three items were developed from Elder and Krishna’s

research to measure the mental simulation (Elder & Krishna, 2012). These three-item on 7-point scale ranging from 1=not at all to 7=very much, as followings, “1. As you viewed the K brand’s ad, you simulate the situation of meeting a better yourself via continuous efforts.”, “2. While viewing the K brand’s ad, you imagine you change yourself via keeping trying.” And “3. While viewing the K brand’s ad, you imagine that you beat the thing that you are afraid.”

**3.3.5. Measures of Self-brand Connections (SCB)**

According to the Escalas and Bettman’s research (Escalas & Bettman, 2003), self-brand connections were measured using three 7-point scale items: “1. Sports brand K reflects who I am”, “2. I can identify with sports brand K”, and “3. I feel a personal connection to sports brand K.” (1=not at all, 7=very much).

**3.3.6. Measures of Purchase Intention (PI)**

This research conducted 4 items to measure the consumers’ purchase intention (Choi et al., 2020; Elder &

Krishna, 2012). They are “1. I will choose K brand rather than any other similar sports brand.” “2. I intend to buy K brand’s sportswear in the future.” “3. I will possibly buy K brand’s sportswear in the future.” “4. I will definitely buy K brand’s sportswear in the future” on the 7-point (1=not at all, 7=very much).

**4. Empirical Investigation**

**4.1. Pretest and Demographic Analysis Results from Main Survey**

Focusing on the Chinese consumers, the English version of the questionnaires were translated into Chinese. And the pretest was conducted by the 50 Chinese students in Korean to check whether there were some errors in the questionnaire. Then, we used the online survey platform “WenJuanXing” to make the questionnaire in Chinese, which was loaded on WeChat to totally collect 225 data.

**Table 2:** Demographic Analysis Results

Variable		Frequency	Percentage (%)
Gender	Male	107	51%
	Female	103	49%
Age	Under 20	33	15.7%
	21-30	63	30.0%
	31-40	44	21.0%
	41-50	52	24.8%
	Over 50	18	8.6%
Income	Under 3000 RMB	33	15.7%
	3000-6000 RMB	76	36.2%
	6000-10000 RMB	56	26.7%
	Over 10000 RMB	45	21.4%
Country	China	210	100%
	Other	0	0%
Total Response		210	100%

**4.2. Level of Each Characteristics**

To test whether participants perceived these three characteristics (i.e., congruence among multisensory cues, self-referencing points and narrative structure) of the sportswear advertising, we summed the scores of items for each of these constructs and averaged them. As shown in Table 3, all the three characteristics were reported to be greater than the median of 4.

**Table 3:** Results of Analyzing Advertising Characteristics

CMC	SRP	NS
5.78	5.87	5.98

**4.3. Reliability and Validity**

Principal component analysis based on Varimax

rotation in SPSS 25.0 was conducted to test the variables' convergent validity. The results in Table 4 indicate that there were six principal components and all the items of each construct were judged to converge to their own construct. The internal consistency of each construct was tested via reliability analysis based on Cronbach's  $\alpha$ , and the results in <Table 4>, where all  $\alpha$  were higher than 0.8 indicated that there was a good internal consistency of each construct.

#### 4.4 Correlations among Constructs

Confirmatory factor analysis was conducted in AMOS

21.0 to test the discriminant validity among constructs. Because discriminant validity is conducted to explore whether the constructs that are not supposed to be correlated are actually unrelated (Shen, Wang, Huang, & Yang, 2021; Zait & Berteau, 2011). Hair, et al., indicate that when the minimum of average variance extracted (AVE) is bigger than 0.5 and meanwhile larger than the squares of the between-construct correlation coefficients, the model meets the good discriminant validity (HAIR JUNIOR, Black, Babin, Anderson, & Tatham, 1998). As shown in Table 5, all the values of AVE are above 0.5, and bigger than the squared correlation coefficients respectively, which reveal a good discriminant validity.

**Table 4:** Results of Analyzing Principal Components

Const-ruct	Item	Component						$\alpha$
		1	2	3	4	5	6	
SRP	Se1	<b>.879</b>	.004	.125	.155	.141	.098	.929
	Se3	<b>.861</b>	.011	.169	.168	.164	.107	
	Se4	<b>.850</b>	.012	.150	.182	.184	.127	
	Se2	<b>.839</b>	.035	.158	.181	.140	.114	
NS	Na4	.032	<b>.879</b>	.041	.107	.131	.155	.919
	Na3	.012	<b>.879</b>	.097	.081	.149	.081	
	Na3	.033	<b>.869</b>	.078	.137	.059	.126	
	Na1	-.017	<b>.860</b>	.103	.121	.060	.146	
CMC	Co2	.171	.142	<b>.811</b>	.248	.175	.072	.892
	Co4	.183	.012	<b>.799</b>	.160	.137	.206	
	Co3	.158	.110	<b>.785</b>	.224	.088	.254	
	Co1	.122	.103	<b>.779</b>	.275	.088	.107	
PI	Pu2	.219	.155	.265	<b>.759</b>	.136	.209	.897
	Pu4	.203	.090	.270	<b>.756</b>	.124	.181	
	Pu3	.219	.221	.288	<b>.731</b>	.137	.244	
	Pu1	.222	.148	.257	<b>.730</b>	.274	.137	
MS	Me3	.170	.144	.105	.158	<b>.846</b>	.175	.887
	Me2	.237	.118	.208	.118	<b>.817</b>	.170	
	Me1	.203	.144	.119	.220	<b>.807</b>	.153	
SBC	Br3	.192	.200	.272	.219	.189	<b>.797</b>	.910
	Br1	.169	.253	.213	.230	.201	<b>.789</b>	
	Br2	.158	.249	.234	.330	.280	<b>.708</b>	
Eigen Value		9.430	2.998	1.854	1.394	1.060	.954	
Variance Explained		15.679	15.491	14.422	13.155	11.495	10.168	
Variance Cumulative		15.679	31.170	45.592	58.747	70.242	80.410	



**Table 5:** Results of the AVE and Squared Corrections Coefficients

AVE	CMC	SRP	NS	MS	SCB	PI
CMC	<b>.675</b>					
SRP	.462(.213)	<b>.767</b>				
NS	.288(.083)	.116(.013)	<b>.741</b>			
MS	.466(.217)	.503(.253)	.350(.123)	<b>.724</b>		
SCB	.621(.385)	.459(.211)	.492(.242)	.608(.370)	<b>.772</b>	
PI	.708(.501)	.552(.305)	.403(.162)	.558(.311)	.712(.510)	<b>.686</b>

Note: the numbers of the diagonal mean AVE.

#### 4.5. Testing Measurement Model

AMOS 21.0 was adopted to check the convergent validity of items for each construct. The confirmatory

factor analysis results in Table 6 show that all the C.R. of items for each construct were above 2.00. Thus, the items of each construct are judged to converge with each other.

**Table 6:** Results of Confirmation Factor Analysis

	Items	Estimate	S.E.	C.R.	P
CMC	Co4	1.000			
	Co3	1.083	.080	13.608	.000
	Co2	1.061	.077	13.821	.000
	Co1	.956	.075	12.519	.000
SRP	Se4	1.000			
	Se3	.960	.053	18.276	.000
	Se2	.934	.056	16.598	.000
	Se1	1.005	.056	18.038	.000
NS	Na4	1.000			
	Na3	.974	.056	17.273	.000
	Na2	.983	.060	16.462	.000
	Na1	.933	.058	16.063	.000
MS	Me1	1.000			
	Me2	1.057	.073	14.402	.000
	Me3	1.046	.073	14.303	.000
SBC	Br3	1.000			
	Br2	1.049	.060	17.493	.000
	Br1	1.014	.060	16.834	.000
PI	Pi1	1.000			
	Pi2	1.108	.079	13.972	.000
	Pi3	1.078	.074	14.632	.000
	Pi4	.971	.076	12.808	.000

$\chi^2=204.354$  (DF=194, P=.000), GFI=.920, AGFI=.896, CFI=.997, TLI=.996, IFI=.997, RFI=.934, NFI=.944, RMSEA=.016

4.6. Testing Hypotheses

Structural equation model analysis by AMOS 21.0 program was conducted to test all the hypotheses in this paper. Based on the results in Table 7, there was a good

model fit which  $\chi^2=301.728$  (DF=200, P=.000), GFI=.886, AGFI=.856, CFI=.971, TLI=.966, IFI=.971, RFI=.905, NFI=.918, RMSEA=.049. And according to the Table 7 and Figure 3, all the hypotheses were accepted.

Table 7: Results of Testing Hypotheses

Hy	Path	Estimate	S.E.	C.R.	P	Results
H1	MSPI	.201	.079	2.536	.011	Accepted
H2	SBC → PI	.609	.084	7.224	.000	Accepted
H3	MS → SBC	.275	.078	3.507	.000	Accepted
H4a	CMC → MS	.267	.071	3.743	.000	Accepted
H4b	SRP → MS	.328	.057	5.753	.000	Accepted
H4c	NS → MS	.238	.062	3.840	.000	Accepted
H5a	CMC → SBC	.443	.071	6.275	.000	Accepted
H5b	SRP → SBC	.147	.055	2.678	.007	Accepted
H5c	NS → SBC	.302	.059	5.124	.000	Accepted

$\chi^2=301.728$  (DF=200, P=.000), GFI=.886, AGFI=.856, CFI=.971, TLI=.966, IFI=.971, RFI=.905, NFI=.918, RMSEA=.049

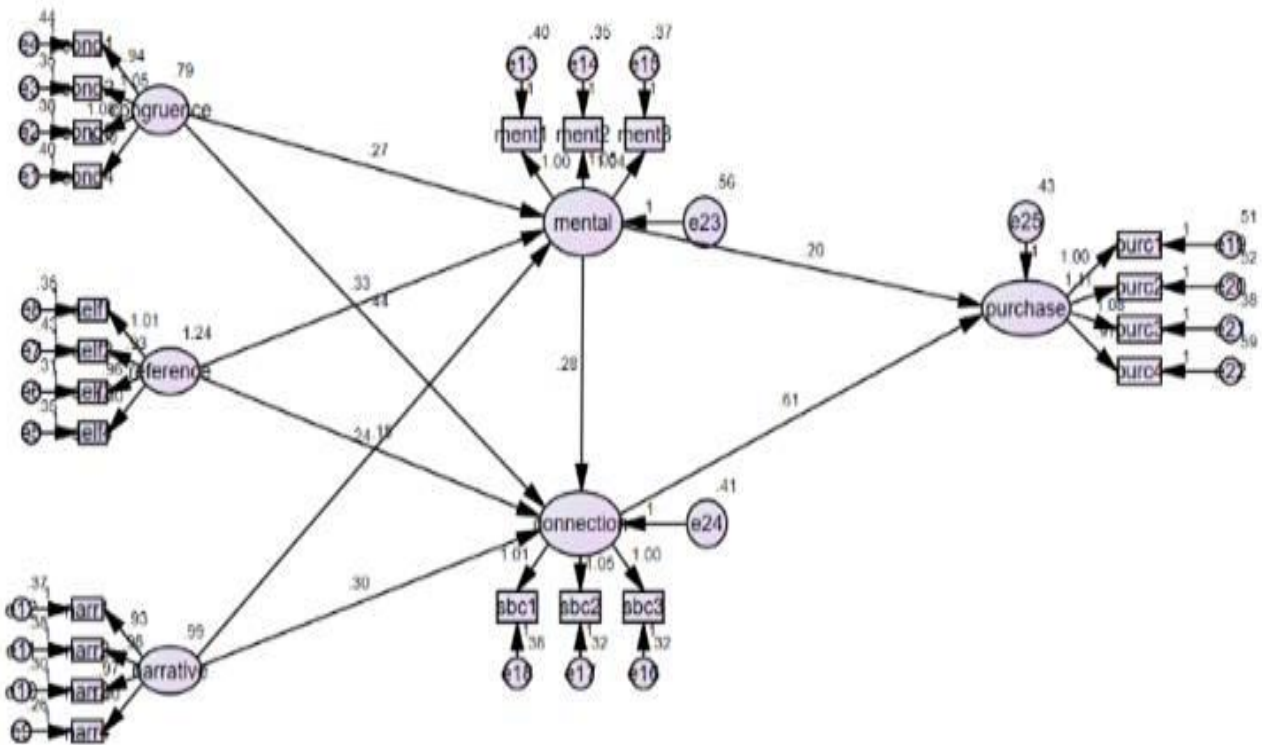


Figure 3: Results of Testing Hypotheses

## 5. General Discussion

### 5.1. Research Summary

In this paper, to test whether consumers' mental simulation and self-brand connections will be affected by the characteristics of the advertising as well as how the impact of mental simulation and self-brand connections on consumers' purchase intention, we set up a fictive brand name K and then developed the sportswear advertising consisting both of nonverbal information (multisensory cues) and verbal information (ad messages). Specifically, we designed the advertising including visual and auditory cues to make participants senses congruence among cues from different sensory modalities rather than only one modality. With regard to the characteristics of verbal information, advertising messages were edited to mainly use "you" rather than "K brand" and followed by the narrative structure. Moreover, this paper further explored the how the consumer purchase intention is influenced by mental simulation and self-brand connections as well as the relationship between mental simulation and self-brand connections. Then, the results of this paper are summarized as followings.

Firstly, mental simulation and self-brand connections have a positive impact on purchase intention. Secondly, mental simulation also positively gives rise to self-brand connections. Thirdly, all the three characteristics of advertising play the positive roles in enhancing consumers' mental simulation and increasing self-brand connections.

### 5.2. Theoretical and Managerial Implication

There are some theoretical implications in this research.

Firstly, this paper contributes to the advertising research via integrating the nonverbal information and verbal information simultaneously. Despite the depth of the existing research (Choi et al., 2020; Escalas, 2004a), this paper plays the greater weights to the both characteristics of nonverbal information (congruence among multisensory cues) as well as the verbal information (verbal self-referencing point and narrative structure) and indicates that both verbal and nonverbal information give rise to consumers' consumption behaviors.

Secondly, this paper extended research on mental simulation and self-brand connections via highlighting the relationship between both of them. Moreover, this paper also provided the empirical evidences indicating that consumers who engage in mental simulation or establish the connections between them and the brand are more likely to show more purchase intention. Therefore, these findings can contribute to the advancement of theory about the positive effect of mental simulation and self-brand

connections on purchase intention (Ferraro et al., 2013; Yim et al., 2020).

Last but not least, this paper develops the marketing research on mental simulation (Muñoz-Vilches et al., 2019) and self-brand connections (Ferraro et al., 2013) through exploring the links among characteristics of advertisings, mental simulation and self-brand connections. Which means, mental simulation can be facilitated by the congruence among multisensory cues, verbal self-references points and narrative structure. Moreover, these features of advertising also encourage consumers to create the connections between them and the brand.

Relying on the research's results, we also concluded some managerial implications.

First, the results that mental simulation and self-brand connections positively influence purchase intention indicate that advertisers should pay more attention to evoking consumers' mental imageries as well as self-brand connections.

Second, the results that congruence among multisensory cues, self-referencing points and narrative structure positively affect mental simulation and self-brand connections offer an effective strategy for advertisers to attract consumers' attentions and then stimulate consumers' imageries as well as encourage them to creative various connections between them and the brand proactively. Which means, when the product has multisensory cues, advertisers should pay attention to whether these various cues are compatible with each other. What's more, advertisers also can use self-reference point in the ad messages and edit ad messages depending on the narrative structures.

Thirdly, the result that mental simulation can enhance the connections between consumers and the brand suggests that in order to establish the strongly relationships between consumers and the companies, marketers should focus on how to arouse consumers' mental simulation when they communicate with their consumers, both on- and offline.

Lastly, although this paper indicates how the characteristics of advertising affects mental simulation and self-brand connections, self-referencing points and narrative structure can also be considered as an effective strategy for market sellers to attract consumers' attentions when they directly deal with the consumers, such that using more words like "you" rather than "our brand or this products".

### 5.3. Limitations and Directions for Future Intention

Although this paper suggests some implications in theory and management, we also summarize some limitations and directions for future research.

Firstly, this paper only studied characteristics of congruence among multisensory cues, self-referencing point and narrative structures. The other dimensions of advertising, such as sensory information assessment perspective (Schreuder et al., 2016), the different narrative processing (Polyorat et al., 2007) can be explored in the future research.

Secondly, this paper explored the relationship between mental simulation and self-brand connections but did not mention the level of the mental simulation and self-brand connections. Thus, future research can further investigate the effect of mental simulation on self-brand connections via different dimensions.

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