Impact of Product Pictures and Brand Names on Memory of Chinese Metaphorical Advertisements

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This study's hypotheses are based on the associative network model of memory proposed by Anderson (1984, 1985), and Anderson and Bower (1972). Three kinds of metaphors (symbol-resembling metaphors, appearance-resembling metaphors, and relation-resembling metaphors) and two types of message cues (product pictures and brand names) were used as the independent variables, while a 3 × 2 within-subjects design with six experimental situations was used to test the effects of various advertisements on memory. The results of the study indicate that the type of metaphorical rhetoric in Chinese-language print advertisements, as well as the differences in message cues, will influence a customer's memory of those advertisements. In particular, advertisements utilizing symbol-resembling metaphors and appearance-resembling metaphors, along with message cues consisting primarily of product pictures, yield relatively good advertisement memory. In addition to these findings, this study also shows that advertisements containing both relation-resembling metaphors and message cues consisting primarily of brand names yield relatively good advertisement memory.

Keywords **–** Advertisement Memory, Brand Name, Metaphorical Advertisement, Product, Picture.

Relevance to Design Practice – Using the metaphor related to a product image or a brand name is one of the more effective methods for activating advertising memory. Sponsors and creators of advertisements can make good use of this information as they seek to maximize the persuasive potential of their efforts.

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Introduction

Researchers typically classify metaphorical advertisements in the printed media as contradictory associations (Leigh, 1994) or as destabilization tropes (McQuarrie & Mick, 1996). Although a metaphor is a kind of unstable trope model, the rhetorician believes that a metaphor contains strong persuasive power (McQuarrie & Mick, 1996; Morgan & Reichert, 1999). MacInnis, Moorman, and Jaworski (1991) have suggested that metaphorical advertisements tend to lead consumers to profoundly process the message being presented therein. Mick (1992) proposed a theoretical framework using levels of subjective comprehension (LSC) to explain the perspective of an advertisement's message in relationship to the consumer's comprehension. This theory explains that, the higher the level of advertising language understood by the consumer, the better the advertising memory will be. McQuarrie and Mick (2003) have reviewed research findings in relation to rhetorical advertisements for over fifteen years and have found that trope type advertisements not only enhance consumers' advertising memory, but also strengthen their positive attitude toward a product. Barry (1987) has indicated that when consumers perform cognitive processing, their initial perception of a message's content kicks off not only the cognitive process, but the memory process as well. Although some studies have demonstrated that metaphorical advertisements can easily arouse viewer motivation to perceive the advertising message, most studies have not contained in-depth analyses of the types of metaphorical rhetoric used or the necessary data to determine what kind of metaphorical language is most successful in stimulating consumers to gain a deeper perception of the advertised message. This establishes the initial focus of this study.

Most print advertisements consist of three basic elements: a visual element (a picture), a language element (words), and a brand name element (the merchandise). The establishment of correlations and connections among these elements serves to improve the memory of the consumer. At the same time, the advertiser can strengthen the consumer's memory of the merchandise being advertised by exploiting the relationship of picture, words and brand name in accordance with clues (Schmitt, Tavassoli, & Millard, 1993). The dual loop theory proposed by Rossiter and Percy (1980) expounds on the visual loop and verbal loop, which can be processed through visual imagery and verbal belief, respectively, and which can influence the attitudes of consumers. Edell and Staelin (1983) have shown that consumers tend to recall an advertisement more easily when

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the content is related to a brand name in the form of pictures or words. Also, McCracken and Macklin (1998) have shown that the extent of advertising memory, when dealing with brand names, increased when the picture viewed by consumers was associated with the target of the advertised message. However, visual and word vehicles allow consumers to create a preferred advertising memory, which is another research focus of this study.

In the associative network model of memory, researchers assume that memory is composed of a system of nodes. The idea is that each node is a memory with its own combination within a system. The activation of each node can arouse an associative reaction of other nodes in such a way that the more active a node is, the stronger the aroused memory will be (Anderson, 1983). Based on this model, the third focus of this study is to discuss metaphorical advertisements further in conjunction with the theory of the associative network model of memory by considering product pictures and node association of brand names, and by determining which associative model of messages best arouses a consumer's preferred advertising memory. Moreover, different types of metaphors are analyzed to find out whether they lead to differences in the degree of consumer advertising memory.

Effectiveness of Metaphorical Advertisements

Research into metaphorical rhetoric was begun long ago by cognitive psychologists. More recently, Gentner and Markman (1997) suggested that metaphors should be interpreted in a simulation concept, where "A is to B" as "C is to D." This concept of metaphorical interpretation now undergirds a type of advertising that utilizes the juxtaposition of targets and vehicles in generating a trope model. Phillips (1997) has proposed that if the operating rules of a working metaphor were transferred to advertising pictures, turning them into a visual metaphorical advertisement, the communication effect would exceed that of a traditional advertisement. According to previous literature, consumer processing of an advertisement's message is key to the success of metaphorical advertizing. However, the results of other studies present different findings. For example, Toncar and Munch (2001) have proposed that, when the tropes of an advertisement are deeply processed by consumers (suggesting a more complicated tropical degree), the advertisement is more likely to persuade and impress the consumer. However, McQuarrie and Mick (1996) have inferred that complicated tropical advertisement types will actually restrain consumers from processing the advertisement's message.

The concept of metaphor, formed long ago in ancient Greece (Boozer, Wyld, & Grant, 1992), retains an essential role in conveying messages today (Lakoff & Johnson,1980). In our daily lives, a long-established concept gradually transfers into a practice, convention or rule, and is then presented in the form of a sign (Lakoff & Johnson, 1987). Later, it transforms into a generally-accepted rule in the culture. The metaphor of a sign has a symbolic meaning (Hoopes & Peirce, 1991) and is categorized as a "symbolic metaphor." For example, "V" represents "victory." Deducing the meaning of a metaphor is a cognitive process, in which analogy and resemblance play a major role. Hence, a metaphor can be interpreted from the perspective of analogy and resemblance. (Gentner & Markman, 1997; Gregan-Paxton & John, 1997). Gentner and Markman (1997) believed that the degree of relational resemblance and the degree of attributive resemblance construct a space model for metaphoric resemblance. Based on this model, Gentner and Markman (1997) derived the "mere-appearance/attribute metaphor" and the "relational metaphor" for the analogy mapping of objects (Markman & Gentner 2000). Metaphor is clearly a means of conveying information; Sperber and Wilson (1986) claimed that the inferential processes and the addressee's decoding determine whether the message is strong or weak. The more strongly a message is conveyed, the easier it is for the addressee to deduct and decode the message, and the more easily it meets the addressee's expectations. Conversely, the more weakly a message is conveyed, the harder it is to deduct/decode and the less likely it is to meet the addressee's expectations.

Based on the above studies, metaphors are classified into three categories: symbol-resembling metaphors, appearance-resembling metaphors, and relation-resembling metaphors. Drawing on the principle of relevance in relevance theory (Sperber & Wilson, 1986), these three types were chosen to serve as the independent variables in the experiment undertaken in this study. For the three types of metaphors, the pairing of pictures and words induces information-processing at different levels. See Table 1 for the definitions and explanatory examples of these three kinds of metaphors. Based on the discussion above, this study proposes the following hypotheses:

- **H1a**: The intensity of consumer advertising memory for symbol-resembling metaphors is higher than for appearance-resembling metaphors.
- **H1b**: The intensity of consumer advertising memory for symbol-resembling metaphors is higher than for relation-resembling metaphors.
- **H1c**: The intensity of consumer advertising memory for appearance-resembling metaphors is higher than for relation-resembling metaphors.

Visual Metaphors and the Associative Network of Memory

Steen (1989) has suggested that the essence of a metaphor is knowing, experiencing, or annotating the characteristics of one

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object from the angle of another object. According to Zoltán Kövecses (2002), the annotating object is called the source domain, and the annotated object is called the target domain. Initially, both are mutually independent objects associated by a certain level of relevance. The advertising metaphor relies mainly on visual pictures, often combining the external characteristics of the advertised merchandise with the visual picture of the source domain, helping consumers understand the advertised message. Some researchers think that the metaphorical forms of visual cues might activate nodes in the associative network of memory, resulting in more effective advertising memory. Such a hypothesis has been demonstrated by many researchers (Macklin, 1996; McCracken & Macklin, 1998).

Associative network models (Anderson, 1984, 1985; Anderson & Bower, 1972) postulate that memory consists of a system of nodes that are linked to other nodes via pathways at different degrees of association (Schmitt et al., 1993). When stimulation occurs, nodes can activate each other to generate stronger connections. The larger the number of activated nodes, the stronger the connection between nodes is, which in turn creates more significant memories. During the message retrieval process, the nodes randomly diffuse through the network and stimulate the activation of other nodes. These stimulated and activated nodes naturally result in strong connections (Anderson & Reder, 1979). Braun (1999) has indicated that the memory involves a lively and structured processing procedure, resulting from obtained and stored messages. Therefore, since any type of message or notion can be stored in the network of memory as a node (Keller, 1987), visual metaphorical advertisements would likely have the same effect (Figure 1).

In accordance with the foregoing discussion, this study proposes the following hypothesis:

- **H2:** In metaphorical advertisements in which message cues rely mainly on a picture of the product, the intensity of consumer advertising memory exceeds that of message cues relying mainly on brand name.

Schmitt et al. (1993) classified the node types of advertisements into three main elements: visual message, word message, and brand name. The framework of picture/copy/brand-name is proposed based on the correlation among these three

Table 1. Definitions of types of metaphors used in advertisements and example advertisements.

	Metaphorical Advertisement Type		
	Symbol-resembling metaphor	**Appearance-resembling Metaphor**	**Relation-resembling metaphor**
Definition of metaphor type	Possesses a conventional abstract concept. Via social or cultural constraints, the picture is imbued with an abstract meaning or concept. For instance, ♀ symbolizes female, ♂ symbolizes male, and ♥ symbolizes love.	Possesses external attributes such as shape, color, material, and grain. The image's characteristics can be determined through direct observation. For instance, a car possesses a steering wheel and four wheels, and a leopard possesses its pelt and spots.	The effect of object A on B is like the effect of C on D. People must have relevant knowledge to understand the concept. For instance, if it is believed that children who drink a lot of milk will grow tall, then the idea of a tree growing tall if given lots of water is an appropriate metaphor.
Message processing level	Low-complexity advertising trope	Moderate-complexity advertising trope	High-complexity advertising trope
Explanatory example advertisement			
Advertisement wording	"The information line that answers all your questions"	"Nothing but fish"	"For flatulence and digestive disorders"
Advertised product	Pregnant Women's Protection Association	Canned fish	Remedy for flatulence
Advertisement content	This advertisement inverts a question mark, which possesses the meaning of inquiring and questioning, to create a form similar to that of a pregnant woman. This metaphor signifies that the association provides consulting services of all kinds to pregnant women.	The top of a can, which resembles ripples in a pond, is combined with the act of fishing. This implies that the fish in the can is as fresh as if it were just caught.	An image of a flip-top can ring signifies that, after someone takes this medicine, their discomfort from flatulence will disappear and the person will obtain relief just as the pressure is relieved when opening a soda can.

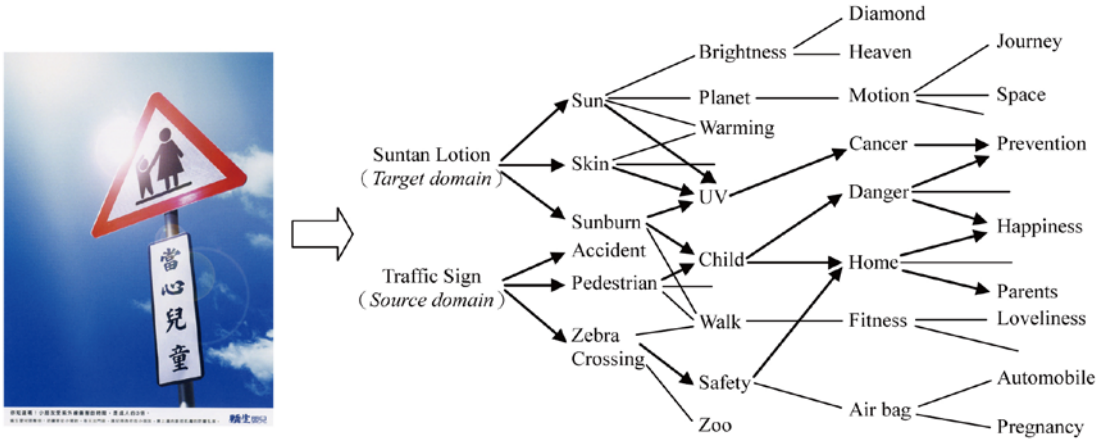

Figure 1. Associative network model of memory for metaphorical advertisements: Nodes connected via visual image and wording in long-term memory. (The advertisement uses a "look out for children" traffic sign as a metaphor for suntan lotion.)

elements to test the degree of advertising memory of consumers. Schmitt et al. (1993) indicated that different advertisement types could be formed in the picture/copy/brand-name framework. The associative network model of memory is used in the research as a theoretical basis, assuming that the nodes in an associative network of memory can be activated by the combination of different elements in this framework so that memories of different depths can be proposed. This research found that the memory degree for advertisements relying mainly on picture/copy was more effective than for advertisements relying on copy/brand-name. In addition, McCracken and Macklin (1998) found that pictures and brand cues relating to the advertised merchandise were helpful in improving consumers' memory of the merchandise. However, their study does not compare pictures and brand cues. According to the studies above, the copying of visual pictures and brand names would activate the nodes of an associative network of memories. As a result, the consumers' degree of advertising memory would also increase. However, the use of visual images and brand names is only one of the message sources used in metaphorical advertisements. Therefore, this study used the picture/copy and copy/brand-name framework of Schmitt et al. (1993) to induce further cues of product pictures (i.e., the advertised product combined with the image of a visual metaphor) and cues of brand names (i.e., advertising wording combined with brand name). In addition, the two message cues of different types were used as variables to perform further analysis of the degree of influence on advertising memory, and to compare the differences among the types of metaphors. Based on the Elaboration Likelihood Model of Persuasion (ELM) (Petty & Cacioppo, 1979; Petty, Cacioppo & Schumann, 1983), the difference in the degree of consumer involvement affects the channels of information processing. During information processing, individuals with high involvement will seek more sources of information and will employ the central route mode. On the other hand, since the motivation to process the information is less for individuals with low involvement, they will adopt the peripheral route mode.

In accordance with the foregoing discussion, this study hypothesizes that the three types of metaphorical advertisement and the two modes of message cues have an interactive effect on memory for advertising. Therefore,

- **H3a:** In advertisements using symbol-resembling metaphors, the intensity of the advertising memory for message cues relying mainly on a product picture exceeds that for message cues relying mainly on brand name.
- **H3b:** In advertisements using appearance-resembling metaphors, the intensity of advertising memory for message cues relying mainly on a product picture exceeds that for message cues relying mainly on brand name.
- **H3c:** In advertisements using relation-resembling metaphors, the intensity of advertising memory for message cues relying mainly on a product picture exceeds that for message cues relying mainly on brand name.

Method

Research Design

This study employed three kinds of metaphors (symbol-resembling metaphors, appearance-resembling metaphors, and relation-resembling metaphors) and two types of message cues (product pictures and brand names), and used a 3 × 2 within-subjects experiment design to test cunsumer's memories of advertisements. The entire experiment consisted of six situations, and each situation was tested employing one advertisement. The balanced Latin-square method proposed by Edwards (1951) was used to arrange the six experimental situations. To simplify the respondents' choices with regard to order and sequence, all of the print advertisements tested were appropriately arranged in the experimental design.

Participants and Procedure

All participants selected for the study had received professional training in design, as it was felt that they would be more sensitive to visual images than average individuals and better able to concretely describe their thoughts about the metaphorical pictures and to convey comprehensive opinions based on the scale of the questionnaire designed for the study. Thus, the study employed

purposive sampling, selecting a study sample of undergraduate and graduate students with at least two years of study in visual design-related departments at three universities in northern Taiwan. A total of 150 persons initially participated in the study; their ages ranged from 20 to 27. After the experiment, three questionnaires were found to be invalid and were eliminated, leaving a total of 147 valid questionnaires (male = 78, female = 69).

The six experimental advertisements were bound into brochures to enable the participants to make their evaluations in accordance with a set order and thus to reduce potential errors in the experiment. At the beginning of the experiment, the researcher asked the participants if they had seen any of the test advertisements. Anyone who had was excluded from the sample. Each test involved six subjects, who were assigned randomly to situations from A to F.

The researcher explained the examination procedure, but the participants were not informed of the real purpose of the experiment, so as to allow their memories to work naturally and thus reduce potential experiment errors that might result from subjective factors. The researcher revealed the real purpose of the experiment to the participants only when the examination was finished, and instructed them not to relate anything about the contents of the examination or the purpose of the experiment to untested participants. Throughout the experiment, the participants were not allowed to discuss anything with any other participants. When participants proceeded from one question to the next, they could not go back and revise their answers to any previous questions. They also were not allowed to view any questions in advance. If any of these aforesaid circumstances occurred, the questionnaire was marked as invalid.

Experimental Stimuli and Variables

Stimuli

This study preliminarily selected 15 print advertisements suitable for the study's purpose from Chinese-language advertising catalogs. After soliciting the opinions of experts and scholars, advertisements containing well-known brands, unclear pictures, horizontal arrangements, and/or excessively similar products were eliminated, leaving six vertically-arranged print advertisements to serve as the stimuli in the study experiment. To ensure that the advertisements appeared as real as possible, they were all printed with dimensions of 20.5 cm × 26.5 cm.

In the process of searching for advertisements for the experiment, the authors discovered that some advertisements delivered messages using color metaphors. According to Childers and Houston (1984), the order of colors in an image can affect the measurement of advertisement memory. In particular, in certain semantic conditions, colors interrupt and detract subjects from processing advertisement messages. To prevent subjects from using color to remember the advertisement content and thus ignoring any interpretation of the pictorial metaphors, we eliminated any advertisements containing color metaphors during the selection process. For example, one advertisement for a certain brand of shampoo claiming to treat dandruff problems pictured a clean, black board with the words, "Without leaving a little white." This advertisement, because it relied heavily on a color-based metaphor, was removed from the study. Furthermore, to prevent biased decisions, all other advertisements in the experiment were converted to various shades of gray.

Additionally, any unnecessary text that was included in an advertisement was removed (e.g., address, telephone number, name of agent). Thus, the advertisements used displayed only the visual image and the advertising-related wording. In this way, all of the advertisements appeared to have quite similar message presentations and inference factors, thereby increasing the reliability and validity of the experiment (Figure 2).

Independent Variables

One independent variable is the primitive type of metaphorical rhetoric. There are three levels for this in the literature. The first is the symbol-resembling metaphor (SRM), which is a visual presentation of an image that relates to a prescriptive abstract concept. The presentation of this kind of an image is meant to lead the test subject to infer a well-known significance. SRM is classified as a low-complexity advertising trope. The second independent variable is the appearance-resembling metaphor (ARM), which is one that emphasizes a connection between the appearance or characteristics of a product and the visual image. ARM is classified as a moderate-complexity advertising trope. The third independent variable is the relation-resembling metaphor (RRM), in which a visual image can reflect the functional properties of the product by showing the results that one will obtain by using the product, and thus inspiring the viewer to eventually associate these results with the product itself. RRM is classified as a high-complexity advertising trope.

Another independent variable is the *cue mode* of an advertising message. There are two levels of cue modes used in this study. For the first, the cue of the product picture (CPP) is matched with a primitive form of metaphor. In other words, the product picture is combined with an image of a visual metaphor, and the meaning of this image conveys the advertising message more fully than if it had not been used. For the second level of cue mode, the cue of the brand name (CBN) is matched with a type of metaphorical rhetoric. In other words, the brand name is combined with advertising wording that reinforces the brand name in the advertisement. Examples of metaphorical types and message cues used in various advertisements are shown in Figures 2 and explained in Table 2.

Dependent Variables

The dependent variable in this study is the degree of advertising memory, which is based on the degree of an individual's memory of relevant information after a certain experience. It is also the response measurement of explicit memory (Duke & Carlson, 1993). Therefore, this study used methods for testing advertising memory in the last section of the experimental design of the study. The participants were made to perform experimental acts of recall and recognition after being shown the experimental advertisements (Gupta & Gould, 2007; Krishnan & Chakravarti, 1999; Krishnan & Chakravarti, 2003; Norris, Colman, & Aleixo,

2003) to determine the degree of their memory retention. The participants' performances on "recall" were classified into two parts: "unaided recall of advertisements" and "cued recall of brand name." The participants' performances with regard to "recognition" were classified into three parts: "recognition of product type," "recognition of brand name" and "recognition of advertisement."

Each participant completed a relevant questionnaire to determine the degree of "unaided recall," "cued recall," and "recognition" after having viewed six experimental advertisements. The scoring of the test subjects on the questionnaires was classified into the following: (1) a score for "recall of advertisements," which was a result of the addition of the scores for "unaided recall of advertisements" and "cued recall of brand name," and (2) a score for "recognition of advertisements," which was obtained by adding the scores for "recognition of product type," "recognition of brand name," and "recognition of contents of advertisement." The scores for recall of advertisements and recognition of advertisements were added together, thus obtaining each participant's total score for advertising memory (Norris et al., 2003).

Questionnaire Design and Scoring Mode

The contents of the questionnaire and the scoring modes for the study were determined in accordance with questionnaires designed by Norris and Colman (1992, 1993), Norris, Colman, and Aleixo (2001), and Norris et al. (2003). The five main subjects of the questionnaire included 32 sorted crossheads, with the answer level of each crosshead stipulated according to relevant studies and the scoring scale for the content of the answers provided. The contents of each test subject and the scoring modes are described as follows.

Questionnaire Design

1. *Unaided recall of advertisements:* After viewing the six advertisements, the participants were asked to write down the "brand name," "product type," and "contents of the advertisement" for each of the six. They were to do this without any hints or help at recall.
2. *Recognition of product types:* The participants were asked to correctly pick out the products of the six experimental advertisements from among 48 similar product types.
3. Cued recall of brand name: The questionnaire provided a hint regarding the product types of the six experimental

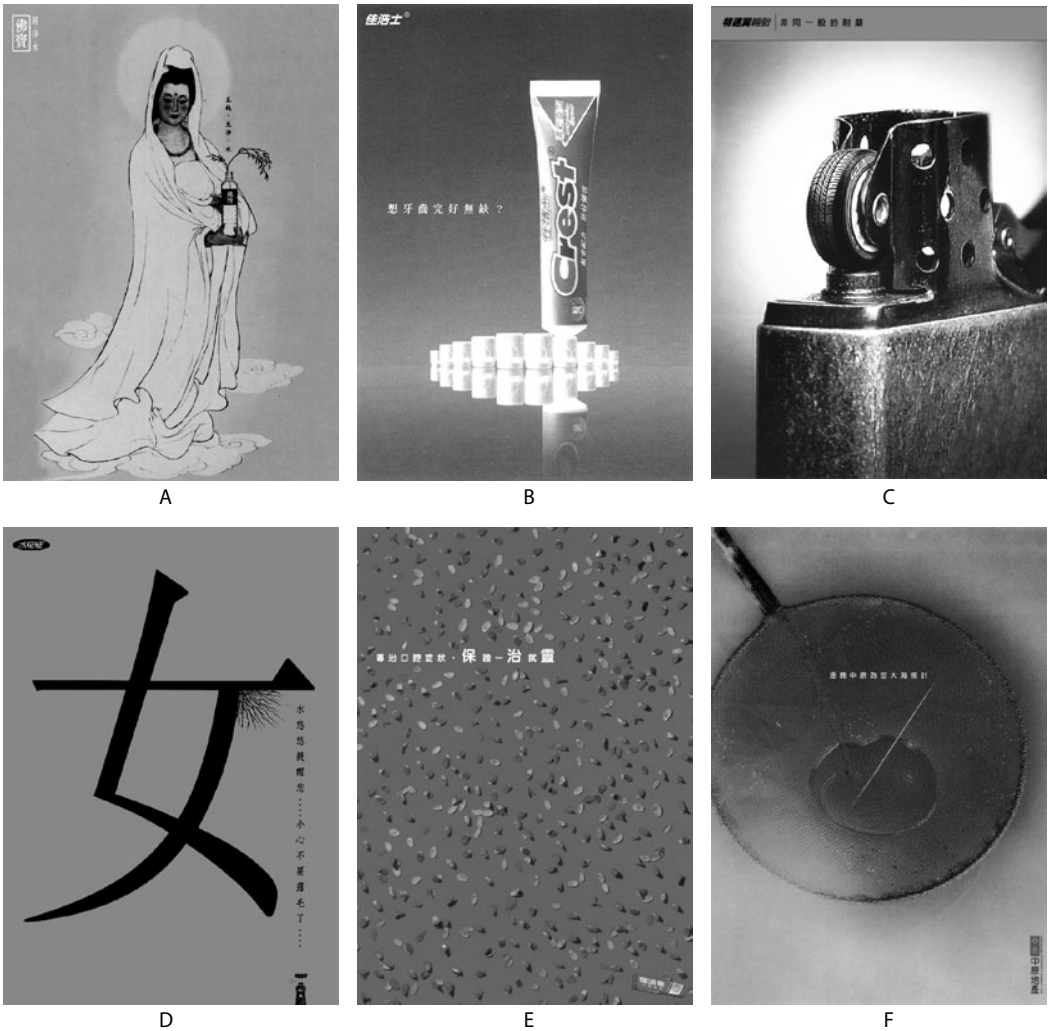

Figure 2. Examples of the experimental advertisements.

advertisements. According to this hint, the participants were asked to write down the correct brand names of the advertisements.

4. Recognition of brand name: After the participants had finished viewing the six experimental advertisements, each correct brand name was displayed with five other quite similar brand names, and participants were asked to select the correct one.
5. Recognition of advertisements: With reference to memory interference theories (Kumar, 2000), the contents of each of the six experimental advertisements were slightly modified and were presented with four other similar advertisements. This portion offered 24 advertisements for testing, randomly arrayed to cause disorder in the participants' advertising memory. The participants were asked to pick out the original six experimental advertisements.

Scoring Mode

1. *Unaided recall and cued recall of brand name:* The participants' answers were graded on five scales. Completely correct answers received four points, and answers with more than 50% correct items received three points. For example, for the brand name "Giant," if the participant answered "Gient," the accuracy of the answer was considered lower than 50% and the participant was given two points. However, if the pronunciation of the brand name was similar--for instance, the participant answered "Ceemt"–he/she received one point. Participants were given no points when their responses were entirely incorrect, when their pronunciation was not identical, or when they gave no response at all.
2. *Unaided recall of product type:* The answers of the participants were graded on three scales. Answers that were perfect or very close to perfect were given two points. For example, for the product "oral ointment," if the participant answered "medicine for the mouth," the answer was considered close in essence but not accurate or sufficient enough, and was thus given one point. If the answer was only "ointment," or if the answer was altogether incorrect, or if the participant did not fill in an answer, he/she received zero points.

Table 2. Description of the experimental advertisements.

Message Cue of Product Picture (CPP)			
Metaphorical Type	***Product Types***	***Brand Name***	***Headline and Content of the Advertisement***
(Figure 2A) Symbol-resembling metaphor (SRM)	Mineral water	Buddha Treasure (佛寶)	• "Extremely pure, extremely clear water." (至純、至淨、水) • A common person's impressions of Avalokitesvara are combined with the characteristics of the product to imply the "cleanliness" of this brand of mineral water, like the holy water in Bodhisattva's hands. The advertisement inspires consumers to experience the water's purity before they drink it.
(Figure 2B) Appearance-resembling metaphor (RAM)	Toothpaste	Fine Great Soldier (佳浩士)	• "Would you like to keep your teeth perfect?" (想牙齒完好無缺？) • An obvious external characteristic of "teeth" is formed by arranging a whole toothpaste tube and several white caps in a curved line, an image that implies that consumers can have a row of exceedingly white and healthy teeth by using this brand of toothpaste.
(Figure 2C) Relation-resembling metaphor (RRM)	Automobile tires	Fast Wing Special (速翼特)	• "Extraordinary wear resistance." (非同一般的耐磨) • The image of a stone wheel on a lighter is used to replace an image of a tire to imply the "wear resistance" of this "tire" on the road. The reference to the idea of rubbing a stone wheel against a flint stone suggests that the tire being advertised is very durable.
Message Cue of Brand Name (CBN)			
(Figure 2D) Symbol-resembling metaphor (SRM)	Ladies' shaver	Water Leisurely (水悠悠)	• "Water Leisurely reminds you: beware of leaving your hair exposed." (水悠悠提醒您，小心不要漏毛了) • The Chinese character for "woman" is combined with the appearance of exposed armpit hair, implying that women should pay attention to their personal appearance. In addition, the brand name "Water Leisurely" is placed in the advertisement as another way to cue the brand name in a humorous way.
(Figure 2E) Appearance-resembling metaphor (RAM)	Oral ointment	Guarantee- Cure-Efficacious (保治靈)	• "Especially for oral cavity symptoms, Guarantee-Cure-Efficacious gives you assurance." (專治口腔症狀，保證一治就靈) • Several white seed shells are set against a red background to indicate the idea of an ulcer in the oral cavity resulting from high internal heat. In addition, the brand name "Guarantee- Cure-Efficacious" is placed in the advertisement along with the words "one use guarantees immediate effects"; thus, the brand name is cued again.
(Figure 2F) Relation-resembling metaphor (RRM)	Real estate	Central Country (中原)	• "Central Country can find a needle in a haystack for you." (逐鹿中原，爲您大海撈針) • The action of a needle being dragged by a net implies something that is quite difficult to locate; it also implies that this company can do things others can't do. In addition, the brand name "Central Country" is placed in the advertisement along with the words "fight for the throne"; thus, the brand name is cued again.

3. *Unaided recall of advertising picture:* The answers of the participants were graded on three scales. Answers that were perfect or close to perfect were given two points. For example, for the advertising picture "a tooth shape arranged using white toothpaste caps and toothpaste," if the participant answered "toothpaste caps, teeth, and toothpaste," the answer was considered close in essence, but not accurate or sufficient enough, and only one point was given. If the answer given was "toothpaste caps and toothpaste," which would be considered totally incorrect, or if the participant did not fill in an answer, he/she was given zero points.
4. *Product type, brand name, and recognition of advertisements:* This portion indicated the participants' scores for "recognition of advertisements." If the participant gave the correct answer, he/she received one point; for incorrect answers, zero points were given. Each of the six experimental advertisements had three parts.

Results

Analysis of Reliability

The contents of the advertising memory questionnaire in this study were derived from discussions with relevant professional designers who could base their views on references to either their own studies or related studies. In addition, scoring operations were carried out after the questionnaires were completed and returned. As for the scoring mode for the first test subject, the participants were asked to recall "brand name," "product type," and "contents of advertisements" freely. For the third test subject, participants were allowed to recall "the brand name" with the aid of hints, as the answers of the participants would be classified into several grades. This study adopted two scoring methods: the score for this part of the questionnaire entailed taking the average value of both scoring methods as the final standard. Spearman-rank correlation was used to check whether the scores of the two methods were consistent. The results are shown below. For unaided recall of brand name, r =.840; for unaided recall of product type, r =.831; for unaided recall of contents of advertisements, r =.853; for cued recall of brand name, r =.852. These results are indicative of a scoring methodology that is both very consistent and demonstrably reliable.

Hypothesis Testing

A two-factor analysis of variance was adopted to determine the impact of two independent variables, including the "metaphor-resembling type" and the "message cue mode" on the dependent variable "advertising memory." The results show that no matter what the aspect of recall was in relationship to the advertisements, whether it was recognition of advertisements or overall memory of advertisements, the F values of metaphor-resembling type × message cue mode reached a significant level of p <.001 (recall of advertisements F (2, 144) = 21.59, p < .001 and the recognition of advertisement F was (2, 144) = 9.88, p < .001. Overall memory of advertisements F was (2, 144) = 21.51, p < .001) (Table 3).

These results showed that the impact of the two independent variables on advertising effectiveness had an interactive effect. In other words, when it came to the metaphor-resembling type and the message cue mode, these two independent variables impacted advertising memory in that they changed as other independent variables changed. According to Two-way ANOVA analysis, the impact of the two independent variables on the dependent variable did have an interactive effect. To determine the exact impact, this study carried out a simple effects test, using LSD (least significant difference) for post-hoc comparison tests, so as to identify the cause of impact between the two independent variables (Table 4).

As for the metaphorical type of visual images, whether the message cue was a product picture or a brand name, the three metaphorical types had a significant impact on recall of the advertisements (CPP: F (2, 144) = 36.55, p < .001; CBN: F (2, 144) = 38.76, p < .001). If the message cue of a product's picture was adopted, the participants' recall degree for SRM was better than for ARM or RRM. If the message cue of brand name was adopted, then the participants' recall degrees for SRM and RRM were better than for ARM. As for the effect size, the interpretation variance η2 value of the two variables for the participants on CPP and CBN were 20% and 21%, respectively, as both were higher than 14%. These results show that there was a highly related interpretative power between the independent variable of the message cue mode and the dependent variable of advertising memory (according to Cohen's standard of judgment on effect size, 14% and above is considered a high relationship, between 14% and 6% is considered a middle relationship, and 6% or below is considered a low relationship). Furthermore, on the ARM and

Table 3. Analysis of variance on advertisement memory.

Variances source		SS	df	MS	*F* value
Recall	Metaphorical type (A)	1326.04	2	663.02	55.15**
	Message cue mode (B)	3.43	1	3.43	0.34
	A×B	543.34	2	271.67	21.59**
Recognition	Metaphorical type (A)	12.41	2	6.20	19.86**
	Message cue mode (B)	4.35	1	4.35	10.61*
	A×B	6.70	2	3.35	9.88**
Overall Memory	Metaphorical type (A)	1824.50	2	912.25	61.61**
	Message cue mode (B)	2.50	1	2.50	0.18
	A×B	708.60	2	354.30	21.51**

Note: $^{*}p < .01$; $^{**}p < .001$.

RRM, the difference in message cue mode gave the participants varying degrees of recall in reference to the advertisements (ARM: F (1, 145) = 20.95, p < .001; RRM: F = 6.60, p < .001). According to the interactive effects diagram (Figure 3), if the ARM was presented by the message cue mode of the product picture, the participants' advertising memory degree turned out to be better than for the message cue mode of brand name; however, the RRM results indicated just the opposite.

Regarding the recognition of advertisements, it did not matter whether the advertising message cue was presented with a product picture or a brand name: both had a significant impact on recognition of the advertisement, with the results of the metaphorical type of visual image being (CPP: F (2, 144) = 15.34, p < .001; CBN: F (2, 144) = 13.89, p < .001). Regarding the message cue of product picture, the participants' recognition degree for SRM exceeded that for ARM and RRM (Figure 3), and the recognition degree for ARM also exceeded that for RRM. For the message cue of brand name, the participants' recognition degrees for SRM and RRM were obviously better than those for ARM. Moreover, the recognition of RRM was influenced by the message cue mode, resulting in varying degrees of results (F (1, 145) = 30.33, p < .001). The interpretive variance of this independent variable, η^2= 17.2%, also showed a high-relation interpretative power on the interaction effects diagram (Figure 3). Although the difference in the message cue of an SRM did not reach a statistically significant level, this study found that if the message cue of a brand name was used for presentation, the participants' recognition of the advertisement would be better than if the message cue of the product picture was used. When compared with the variables of advertisement recall, they showed opposite results.

For overall memory of advertisements, the metaphorical type of visual image was also influenced by the difference in CPP or CBN, hence creating a significant impact (CPP: F (2, 144) = 40.45, p < .001; CBN: F (2, 144) = 40.53, p < .001). For the message cue of product picture, the participants' overall memory for SRM was better than for ARM and RRM. For the message cue of brand name, the overall memory degree of participants for the variables SRM and RRM exceeded that for ARM. From the effect size, all the interpretive variance η^2 values

Table 4. Analysis of variance of test results of simple main effects.

	Variances Source		df	*F* value	η^2	Post-hoc tests
Recall	Metaphorical type (A)	in CPP (B1)	2	36.55*	.200	A1 > A2; A1 > A3
		in CBN (B2)	2	38.76*	.210	A1 > A2; A3 > A2
	Message cue mode (B)	in SRM (A1)	1	0.24	.002	NS
		in ARM (A2)	1	20.95*	.125	B1 > B2
		in RRM (A3)	1	6.60*	.154	B2 > B1
Recognition	Metaphorical type (A)	in CPP (B1)	2	15.34*	.095	A1 > A3; A1 > A2; A2 > A3
		in CBN (B2)	2	13.89*	.087	A3 > A2; A1 > A2
	Message cue mode (B)	in SRM (A1)	1	1.19	.008	NS
		in ARM (A2)	1	0.12	.001	NS
		in RRM (A3)	1	30.33*	.172	B2 > B1
Overall Memory	Metaphorical type (A)	in CPP (B1)	2	40.45*	.217	A1 > A2; A1 > A3
		in CBN (B2)	2	40.53*	.217	A1 > A2; A3 > A2
	Message cue mode (B)	in SRM (A1)	1	1.38	.009	NS
		in ARM (A2)	1	17.99*	.110	B1 > B2
		in RRM (A3)	1	31.52*	.178	B2 > B1

Note: CPP = message cue of product picture; CBN = message cue of brand name; SRM = symbol-resembling metaphor; ARM = appearance-resembling metaphor; RRM = relation-resembling metaphor; * p < .001.

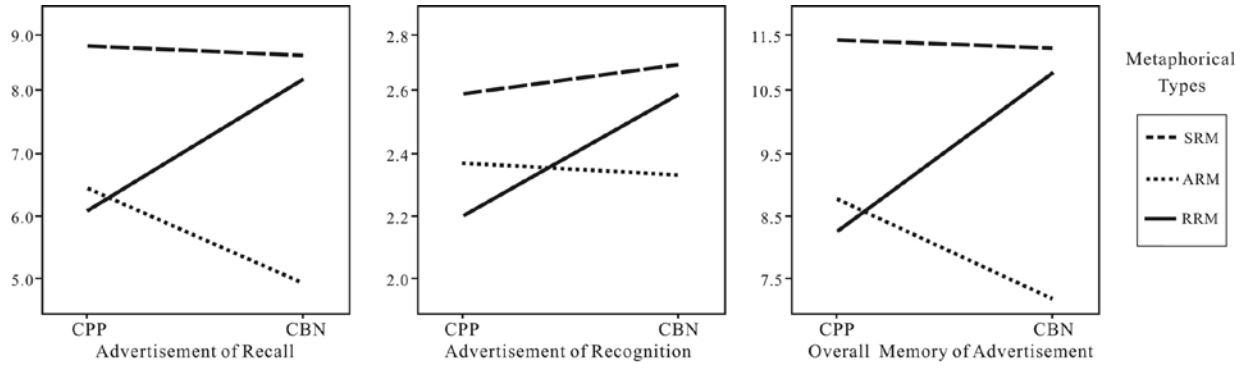

Figure 3. Interactive effects of variables on advertisement memory.

of the participants on CPP and CBN were 21.7%, in which they all had a high-relation interpretive power. However, for SRM, the difference in message cue modes did not show a notable level (F (1, 145) = 1.38, $p > .05$). According to the interaction effects diagram (Figure 3), the message cue of product picture enhanced the degree of the participants' advertising memory. For ARM and RRM, the difference in message cue modes gave participants varying degrees of advertising memory (ARM: F (1, 145) = 17.99, $p < .001$; RRM: F (1, 145) = 31.52, $p < .001$). In addition, the overall memory for CPP was better than for CBN. The interpretive variances, η^2=17.8% of RRM, along with overall memory, had a high-relation interpretative power between them. In RRM advertisements, the overall memory of advertisements using CBN was better than that for advertisements using CPP.

Results drawn from hypotheses testing are summarized in Table 5. Analysis of these results follows in the next section.

Conclusion

The difference in metaphorical types of visual images influences consumer advertising memory. This study used metaphorical type as one of the independent variables. All three aspects presented obvious differences, with the memory effect for SRM being the best, followed by RRM and then by ARM. This result showed that hypotheses 1a and 1b presented in the study were tenable, while hypothesis 1c was untenable. The SRM advertisement type was a low-complexity advertising trope in this study. In the work of Toncar and Munch (2003), a comparatively simple tropical type is demonstrated, its advertising memory exceeding that of the complicated tropical type. This study has tested the experimental results of hypotheses 1a and 1b, and the results concur with the findings of Toncar and Munch (2003). Furthermore, connecting the theoretical framework of LSC (Mick, 1992) with hypotheses 1a and 1b, this study suggests that the SRM advertisement type, to date, is the most significant prescriptive symbol in society. When symbolic significance is combined with the advertising message for a product, such types of metaphors for consumers have been embedded in their knowledge hierarchies due to long-term experience, study, and personal living and growth experience. As a result, they are more likely to focus on the metaphorical messages of the symbol- resembling type, and they are unlikely to have difficulties in comprehension (Figure 4).

Advertisements of the general type are compared with those of the tropical type in a study done by Toncar and Munch (2001). The authors found that low-degree viewers had a deeper processing of an advertisement's messages in a tropical type, and that the degree of recall for these advertisements exceeded the degree of recall for advertisements of a general type. Compared with the results obtained by Toncar and Munch (2001), this study suggests that the advertising message processing for RRM advertisements is: "The function of A→B is like that of C→D." In this process, vehicles A and B must be known first, then the results of A+B are compared with those of C and D until, finally, these are projected to the target of C+D. This program is a multi-stage thinking model, and this action would arouse consumers' advanced message processing for advertising messages of this type (Figure 5**)**. This can be compared with ARM advertisements, which directly combine the external characteristic of vehicle A with the internal essence of target B. This type of metaphor is just a two-stage thinking model, in which the consumer's level of processing the message is relatively low; in other words, RRM can prompt consumers to perform in-depth message processing, while, in contrast, the processing level of ARM is lower and therefore cannot lead consumers to a profound degree of advertising memory.

The difference in using product picture cues and brand name cues influences consumer advertising memory. According to the average value, if the advertising wording for three metaphorical types of a visual image contains some use of the brand name, consumers will have a deeper advertising memory. In addition, this would be better than a message cue relying mainly on the product picture; but this result is untenable compared with that of hypothesis 2. This study suggests that the learning effect on subjects is the most important factor for determining memory degree. In other words, if the subjects are provided with advertisements using visual metaphors, and the message of the brand name is associated with the advertising message with the assistance of the advertising wording, this will strengthen the learning effect on consumers due to the repeated exposure and stimulation; thereby it is likely that the advertising memory accomplished would be better than that for a message cue using a product picture.

In SRM and ARM advertisements, the message cues relying mainly on product pictures will create preferable advertising

Table 5. The result of hypotheses testing.

Hypotheses (The intensity of consumer advertising memory)		Tenable or Untenable
H1a	SRM (symbol-resembling metaphors) > ARM (appearance-resembling metaphors)	tenable
H1b	SRM (symbol-resembling metaphors) > RRM (relation-resembling metaphors)	tenable
H1c	ARM (appearance-resembling metaphors) > RRM (relation-resembling metaphors)	untenable
H2	CPP (cue of product picture) > CBN (cue of brand name)	untenable
H3a	SRM/CPP (symbol-resembling metaphors/cue of product picture) > SRM/CBN (symbol-resembling metaphors/cue of brand name)	tenable
H3b	ARM/CPP (appearance-resembling metaphors/cue of product picture) > ARM/CBN (appearance-resembling metaphors/cue of brand name)	tenable
H3c	RRM/CPP (relation-resembling metaphors/cue of product picture) > RRM/CBN (relation-resembling metaphors/cue of product picture)	untenable

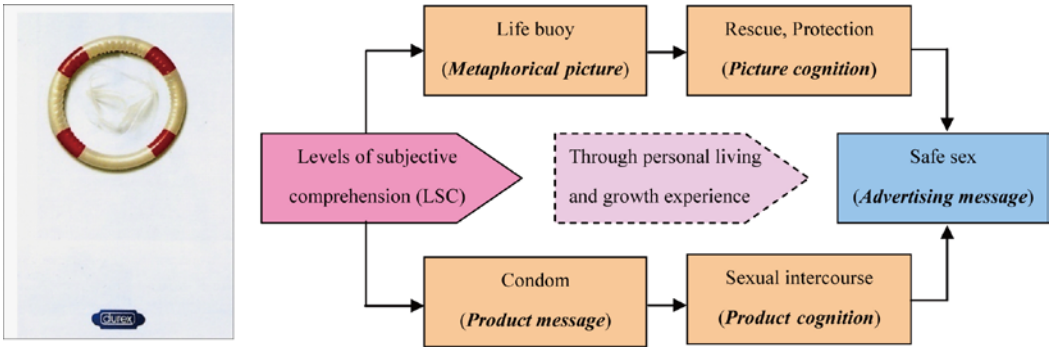

Figure 4. Symbol-resembling metaphor (SRM): Uses the meaning of a conventional symbol to transmit the advertisement's message.

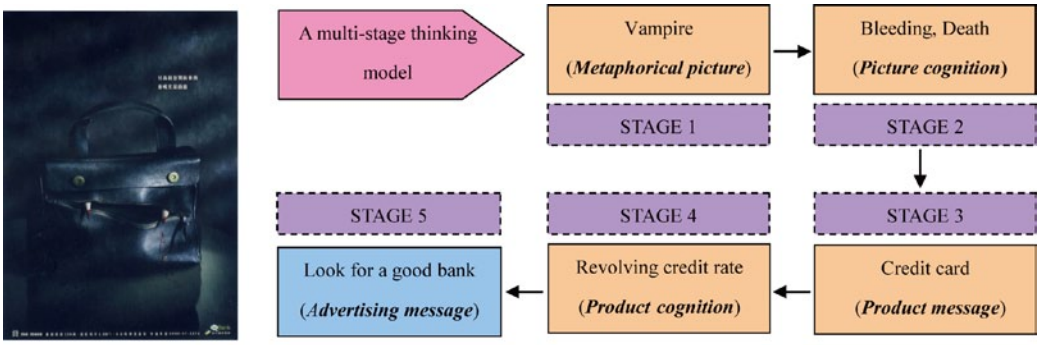

Figure 5. Relation-resembling metaphor (RRM): Uses multi-stage thinking to transmit the advertisement's message.

memory. These results show that hypotheses 3a and 3b in this study are tenable. Some researchers think that the effect of messages associated with visual images and their arousal of consumer message recall is better than that of simple work messages. This viewpoint has also been supported by the same research results of the SRM and ARM advertisements aforementioned in this study. As for consumer reasoning and its relationship to cultural knowledge, McCracken (1986) has suggested that in advertisements using visual metaphors, consumers are able to understand the implicit meanings of metaphorical advertisements based on their personal cultural knowledge. However, cultural knowledge is a universal concept accumulated through personal life experience, and such a concept will change with environmental learning until, finally, it likely becomes a memory schema of a block. For example, the memory schema of "butterfly" will be associated with the symbol of "beauty," and the memory schema of "tortoise" will be associated with the symbols of "long life" and "slowness." Such messages will be stored in a long-term memory system. Once the consumer receives external stimulation (in the form of an image of a butterfly or a tortoise), the memory nodes (the associated meanings of beauty, or long life and slowness) will likely be activated, and then preferable memory effects will be produced.

To review the variables of SRM/CPP in this study, the memory schema of the Buddhist figure Avalokitesvara was used for activating the memory nodes of "purity," and in turn, the memory node of purity was used for activating the impression of "mineral water" (message cue of product image). In the variables of ARM/CPP, the memory schema of teeth was used for activating the memory nodes of "whiteness" and "health," and then the memory nodes of whiteness and health were used to activate the impression of toothpaste (message cue of a product picture). Consumers relate their comprehension of an advertising message to a series of memory schemas and activations of nodes, finally resulting in favorable memory effects being assigned to the messages (Figure 6). However, compared with metaphorical advertisements and message cues of other types, it seems that the memory schemas and nodes are not activated as effectively on the level of cultural knowledge. Taking the variable of RRM/CPP as an example, while this advertisement emphasizes the wear resistance of a tire, the metaphorical vehicle uses the memory schema of a "lighter" for activating the memory node of wear resistance. However, there appears a certain degree of discrepancy at this activation stage (a lighter is more apt to be associated with light), so the memory effect is not as definite.

In RRM advertisements, message cues relying mainly on brand name create preferable advertising memory. Another finding of this study is that when consumers are confronted with RRM advertisements with an advertising message provided by a cued brand name, the aroused advertising memory of the consumer exceeds that for a message cued by product picture. These results show that hypothesis 3c in this study was untenable. The reason for this is related to the dual coding theory of Paivio (1986); the research of Schmitt et al. (1993) provides an answer as well. Paivio (1986) proposed that, in dual coding theory, message processing modes could be classified as belonging to picture systems or to language systems. As these two systems are different in structure and function, they carry out message processing separately. When under the stimulation of a situational message, they also combined the message's structure to activate each other and generate a correlative connection, thus processing the contents of the message. Based on the relationship between the dual coding

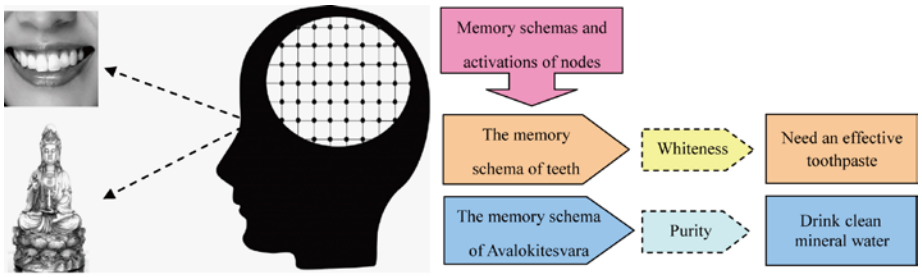

Figure 6. The process by which consumers rely on memory schema and nodes to activate associations with an advertising message.

theory and the experimental results of hypothesis 3c, this study proposes that, in the RRM advertisements, the message cue that relied mainly on product picture was the one using the idea of the "friction of a lighter" to imply the degree of "wear resistance of a tire." The combination of these two items was based on a picture system model that carried out the processing of an advertising message, along with the assistance of the wording, "extraordinary wear resistance," by which the consumer is urged to make the connection that the advertisement is trying to express. This connection is characterized by conceptual relations (Schmitt et al., 1993). This can be compared to the RRM/CBN advertisement, which used a picture of "a net fishing for a needle in water" combined with the wording "Central Country can find a needle in a haystack for you." The advertisements, pictures, and language systems of such types would be in the structure of the message, activating nodes to make correlative connections. According to Schmitt et al. (1993), such combinations are characterized by lexical relations: if the lexical-relations mode is associated with a brand name, then the aroused memory effect on the consumer will exceed that for the conceptual-relations mode.

Discussion

If an advertisement is to be effective, it should first create a good advertising memory in the consumer's mind. However, memory is a complicated processing procedure. It is closely linked with personal experiences and habits as well as customs and cultural values, and is further complicated by the personal network of memories continuously being absorbed by a consumer. How to arouse a consumer's memory related to an advertisement is an issue that advertisers must address. Keller (1987) has indicated that, in the past, sponsors did not have any methods for doing so; they were unaware of how to use effective message hints to guide consumers into remembering their advertisements. Several research findings have shown that the correlations among the elements in an advertisement can effectively improve a consumer's memory of that advertisement. Message cues relating to a picture of a product and to its brand name are some of the more effective methods for activating advertising memory. Sponsors and creators of advertising should take advantage of such information, as it presents persuasive insights into how companies can more effectively market their products.

The metaphorical advertisement is both a complicated rhetorical type and an unstable metaphorical model. Although most scholars have demonstrated that metaphorical advertising can deliver powerfully persuasive effects, it still runs the risk of failing to do so. To reduce the risk of failure, Phillips (1997) has suggested that popular "cultural knowledge" or leading consumers should be utilized in "problem solving," thus linking the implicit internal meaning of metaphorical advertisements for other consumers. This approach can improve consumers' comprehension of an advertisement and increase their degree of advertising memory. It calls for allowing consumers to perceive the presence of an advertising message intuitively by performing cognitive processing of the intended message. The issue then is how to lead the consumer to be motivated and willing to perceive the message expressed in the advertisement. This study shows that memory schemas might arouse consumers' motivation for perceiving messages through associating the levels of brand information, brand identification, product type, or emotional interaction with personal memory schemas. This process would then lead to the activation of memory nodes, causing advertising memory to occur.

In addition, many studies indicate that the advertising memory effect elicited by cues involving a picture message is better than the effect achieved with cues involving a word message. This study shows that, using a message cue related to brand name, it was possible to create in consumers an effect of repeated learning and, therefore, a good memory effect. This showed that, although the cue of a picture message could arouse a favorable memory effect, it was not suitable for all advertisement types, especially for advertisements of the metaphorical type. This was especially true when the metaphorical vehicle was too abstract or complicated. A cue mode that relies on a picture message tends to produce the opposite effect if the consumers cannot comprehend the message; in other words, the expected benefit is not achieved.

Finally, considering the design techniques of print advertisements, the messages that metaphorical advertisements attempt to convey are presented in a concealed form, which may reduce customers' sensitivity toward these advertisements. As a consequence, the design of the message vehicle, and its strength, will influence the effect of a metaphorical advertisement. Because of this, when designing a metaphorical advertisement, the target consumer group must be pinpointed, and a vehicle fitting that consumer group's schema designed, before a triggering effect can be achieved. Furthermore, consumers must be willing to commit a relatively large degree of imagination to understanding advertisements that use vague or hard-to-understand metaphors.

Therefore, this study recommends that advertisements of this type incorporate the brand name in the wording of the advertisement, thus providing consumers with a starting point for interpreting the information in the advertisement. Repeatedly strengthening the product message will ensure that consumers understand the advertising content, and will therefore enhance their memory of the advertisement. This study, in addition, recommends that, to ensure that the wording of the advertisement is clear and intelligible, all types of metaphorical advertisements should avoid ambiguity between the subject and the vehicle. The design of an advertising message can rely on product picture and brand name cues to ensure that connections can be made for the purposes of interpreting the message. This will help consumers use their imaginations and derive a sense of pleasure from reading the wording, a process that will deepen their memory of the advertisement and therefore yield a good advertising effect.

Limitations and Future Research

Several limitations of this study warrant further discussion. First, limiting the sampling to students who have received professional design training limits the generalization of the findings. Even though these students also represent consumers of advertising, their responses in the experiment might not adequately represent general consumers. However, the main reason why this study employed these students as sample subjects was that they had undergone professional training in design and were thus likely to be more sensitive to visual images than individuals without design training. For this reason, it was believed that they could concretely describe their judgments of the metaphorical pictures and could also convey comprehensive opinions based on the scale of the questionnaire. This kind of sampling was beneficial to the thorough analysis conducted on the problems of this study.

Second, stimulus materials for the study were obtained from Chinese-language advertising catalogs. Although these have already been published in print media, they do not completely cover all types of metaphorical advertisements. Moreover, this study did not use similar products as stimuli in all test advertisements. The recall and recognition exhibited by participants might have been influenced by product preferences and a degree of familiarity that might jointly affect overall memory for advertisements.

Third, based on the complexity of comparing advertisements, this study derived three metaphor types from the literature as test variables. This method of classification is not the only one possible; views of scholars on differentiation of metaphor types vary, while metaphor types were not the only three types used for this study. Thus, this method of differentiation also restricts the generalization of the study. As required for test control of this study, advertisements with color metaphors were removed, and, in addition, all of the experimental advertisements were presented in shades of gray. This was done because of findings based on the Elaboration Likelihood Model of Persuasion (Petty & Cacioppo, 1979; Petty et al., 1983), which explain how color is one clue that follows a peripheral route and that it has an impact on low-involvement consumers. The level of impact for this variable needs further empirical research.

Future research could sample consumers who have not received professional training in design. The overall framework underlying this experiment could be redesigned to further clarify whether the stimuli of nodes in the memory for metaphors are interrelated to a person's learning background and, at the same time, employ this information to compare the differences between design professionals and non-design professionals. Aside from this, future research could also set the level of advertising involvement as mediator based on the ELM theory of persuasion to further examine factors influencing effectiveness of advertising.

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