The effectiveness of metaphors in Chinese video advertisements for depression: An experimental study

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Abstract

Metaphors inviting viewers to see and experience one thing in terms of another have been demonstrated as persuasive in print advertisements. However, the extent to which metaphors in video advertisements influence viewers remains underexplored. Given the increasing attention to depression in China and attempts at greater inclusivity in its media representation, we examine metaphors in video advertisements for depression-related products. We examined the influences of metaphors on i) perceived complexity, ii) cognitive elaboration, iii) affective elaboration, iv) attitudes toward the ad, and v) purchase intentions through an experimental survey ($N = 299$) and semi-structured interviews ($N = 29$). The survey adopted a 3 (metaphor uses: feature-highlighting metaphors vs. needs-highlighting metaphors vs. literal) x 2 (product types: search products vs. experience products) design. The results showed that for i) cognitive elaboration, ii) affective elaboration, iii) attitudes towards the ad, and iv) purchase intentions, needs-highlighting metaphors outperformed other conditions regardless of product types. For experience products, features-highlighting metaphors outperformed other conditions, whereas for search products, this condition generated the lowest scores. Findings from interviews showed that metaphors activated

mental images, elicited diverse emotions, and mediated the persuasive power of advertisements. However, reinforced negative appeals may elicit negative perceptions. Practical implications are discussed.

Keywords: Metaphor; Video Advertisements; Experiment; Effectiveness; Depression

1. Introduction

While the mental health issues, including depression, have gained worldwide attention, it was not until 2016 that depression was officially recognized as a mental health disorder by the State Council in Chinese mainland. In the same year, the state media channel China Central Television broadcasted a public video ad titled 小D篇 (Depression)[i] to raise awareness toward caring for people affected by depression. This was the first time that people with depression were represented in official Chinese public media. In 2019, a song written from the perspective of a person living with depression titled *好想爱这个世界啊 (English title: I'm Here)* was released by Hua Chenyu, a Chinese singer with 37.89 million fans on *Weibo* (a Chinese social media platform similar to Twitter). This song shared the feelings and experience of a person living with depression to a target audience of young people. The most recent cross-sectional epidemiological study in China (Lu et al., 2022) reported that the prevalence of depressive disorders was approximately 6.9%. Following this estimate, the number of depressive disorder cases would exceed 95 million in China. However, it was also reported that only 0.5% of people with depressive disorders receive adequate treatment. The availability, accessibility, and acceptability of care for depression in China are therefore urgent concerns for the public and government authorities alike. The *Guidelines for the Prevention and Treatment of Depression in China* suggest pharmacotherapy and

psychotherapy as two primary approaches to treating depressive disorders. In cases where the above two treatments are not applicable, such as elderly people with suicidal tendencies and those who refuse antidepressant medications, modified electroconvulsive therapy (MECT) can be used. China has initiated multiple efforts to reduce the stigma of depression, which also suggests strong potential for more inclusive advertising of treatment products (Licsandru & Cui, 2018; Kipnis et al., 2021). Since depression has been stigmatized for decades in China, there is limited investigation of the societal impact and effectiveness of such advertisements. Such an investigation would provide empirical evidence of the nature of inclusive advertising and consumer responses in the Chinese context.

Metaphor, as a powerful advertising strategy, has been demonstrated to be creative, engaging, and effective (Ang & Lim, 2006; Burgers et al., 2015; Chang et al., 2018; Delbaere et al., 2011; Pérez-Sobrino et al., 2019). Following studies in Cognitive Linguistics, we define a metaphor as "understanding and experiencing one thing in terms of another" (Lakoff & Johnson, 1980, p.5). The object through which we gain a new perspective is deemed the 'target' and the other is deemed the 'source' (Lakoff, 1993; Tay, 2015). We also adopt a multimodal and dynamic perspective (Forceville, 2009; Pan & Tay, 2021), where the metaphor as a conceptual phenomenon could be constructed by any mode and its interactions in a video. Following this approach, a metaphor identified from videos could be labeled as *A IS B/DOING A IS DOING B.* For instance, in the public service announcement 小D 篇 (Depression), the interaction between spoken language, written language and visual images constructs a metaphor *DEPRESSION IS A PERSON*. The written language 'Depression 抑郁症' interacts with the letter D (standing for 'depression'), simultaneously cueing the target 'depression'. The narration in the first person and the use of 'I' cue the source 'person' (see Figure 1). The video then introduces the man's life with this special companion 'D', creating a problematic scenario requiring an urgent solution. Finally, the professional counseling

service appears and changes the man's life. This ad was the first in Chinese mainland to present the clinical characteristics and feelings of a person with a depressive disorder to the public. The metaphorical scenario assists in representing such a person's life.

Figure 1. A screenshot from the ad 〃I *D* 篇 (Depression)

Studies have shown that metaphors in print advertisements enhance attitudes toward the ad and purchase intention by influencing memory, perceived complexity, cognitive elaboration and affective elaboration (Beard, Henninger, & Venkatraman, 2022; Burgers et al., 2015; Chang et al., 2018; Chang & Yen, 2013; Delbaere et al., 2011; Pérez-Sobrino et al., 2019). Nevertheless, the extent to which such effects of metaphors apply to video advertisements remains underexplored. As a prominent mode of advertising in the digital age, videos enhance viewers' experience through multisensory interactions and have the potential for great social impact. Therefore, investigating the influence of metaphors in Chinese video advertisements for products treating depression bears both theoretical and practical contributions to metaphor theory and inclusive advertising.

Metaphors, according to our previous studies (Pan, 2022), could be used for three main purposes in dynamic and temporal discourse, such as video advertisements. The first purpose

is to involve the product as its 'target' and create a central metaphor scenario where the product is advertised as another subject. The second purpose is to support the central metaphor scenario by metaphorizing concepts related to the product as something else. In a video ad, these two purposes often work together to advertise the features and functions of products (Pan, 2022). Therefore, we labeled metaphors for the first purpose as *feature-highlighting metaphors* (Pan, 2022) and those for the second purpose as *supporting metaphors* (Pan, 2022). The third purpose is to address viewers' needs by creating metaphorical scenarios where the product appears as a solution or motive, but is not involved as the target or source. We called such metaphors *needs-highlighting metaphors* (Pan , 2022). The metaphor *DEPRESSION IS A PERSON* discussed in the ad 小D 篇 (Depression), therefore, belongs to the category of *needs-highlighting metaphors.*

1.1 The influences of metaphors on responses to advertisements

Research on the effect of metaphors in print advertisements has considered a wide range of metaphor conditions, such as novel metaphors versus conventional metaphors (Burgers et al., 2015) and visual metaphors with different appeals (Chang et al., 2018; Chang & Yen, 2013; Mulken et al., 2010; Pérez-Sobrino et al., 2019). The classifications were normally based on metaphors' manifestations, such as verbal or pictorial (Delbaere et al., 2011; Jeong, 2008; Kim et al., 2012), being explicit with a large size in depiction or implicit with a small size (Chang & Yen, 2013), and a replacement pictorial metaphor or a juxtaposition pictorial metaphor (Chang et al., 2018).

Manifestations of metaphors may be associated with the complexity of an ad, i.e., the diversity of forms comprised of numbers, similarities, and arrangement of elements in the rhetorical work (Berlyne, 1970; McQuarrie & Mick, 1996). Research has led to divergent

findings on the influence of metaphors on perceived complexity, ad comprehension and appreciation (Burgers et al., 2015; McQuarrie & Mick, 1996; Mulken et al., 2010; Pérez-Sobrino et al., 2019). Metaphors increased the perceived complexity of an ad compared with their literal counterparts according to the marketing literature (Chang et al., 2018; Chang & Yen, 2013; Phillips & McQuarrie, 2004, 2009), where metaphors were defined as artful deviations (Phillips & McQuarrie, 2009). In this paradigm, metaphorical advertisements were rated as more complicated than literal advertisements but received higher scores for attitude and purchase intention (McQuarrie & Mick, 1999, 2003; Mulken et al., 2010). This phenomenon may be due to the additional effort required to solve metaphorical puzzles, thereby alleviating stress and generating a sense of gratification (McQuarrie & Mick, 1996, 1999). However, if too much effort is required to understand a metaphor in an ad, then negative attitudes could be generated. This is because comprehension and appreciation of advertisements have an inverted U-curve relationship where intermediate difficulty in comprehension led to greater appreciation rather than easy and difficult conditions (McQuarrie & Mick, 1999, 2003; Mulken et al., 2010; Phillips, 2000).

Some researchers, however, found that metaphors could also decrease perceived complexity while yielding greater appreciation (Burgers et al., 2015). Cognitive linguists term the equivalent linguistic phenomena of artful deviation as novel metaphors. According to the Career of Metaphor Theory (Bowdle & Gentner, 2005), novel metaphors are initially processed by comparison but gradually become conventional and processed by categorization. Burgers et al. (2015) demonstrated that conventional metaphors in texts, i.e., metaphors that were processed by categorization rather than comparison, decreased the perceived complexity of print advertisements but still yielded higher ratings of creativity and appreciation than literal advertisements. A recent study on multimodal metaphors and other figurative tropes (Pérez-Sobrino et al., 2019) showed that advertisements with complex

figurative tropes, such as metaphoric complexes, metaphotonymy, and metonymic chains, were comprehended faster than advertisements with simple figurative tropes, regardless of the cultural background of the participants.

These divergent findings correspondingly suggest diverse possibilities for the influence of metaphors on perceived complexity, ad comprehension and appreciation. Therefore, we form the first hypothesis as follows:

H1: Metaphor conditions will have an influence on (a) perceived complexity and (b) cognitive elaboration of video advertisements.

While a growing body of studies investigates how metaphors shape emotional expression (Citron & Goldberg, 2014; Tay, Huang, & Zeng, 2019;Tay, 2020), and how emotional responses are linked with effective advertising (Caruelle et al., 2019; Holbrook & Batra, 1987; Micu & Plummer, 2010; Poels & Dewitte, 2006), there are comparatively limited studies on emotional responses elicited by metaphors in commercial advertisements (Jeong, 2008; Kim et al., 2012). Experimental data have demonstrated that metaphorical advertisements elicit more emotional responses than literal advertisements (Jeong, 2008; Kim et al., 2012), as making sense of metaphors released tension and generated pleasure (McQuarrie & Mick, 1999). However, the mechanisms underlying the emotional responses toward metaphorical video advertisements may be different from those in print advertisements. On the one hand, rich contextual anchoring information in video advertisements could ease comprehension, leaving limited space for resolving metaphorical puzzles. A few studies on Dutch TV commercials examined consumer responses from online surveys and found that rhetorical tropes in TV commercials were easy to understand (Enschot et al., 2010; Enschot & Hoeken, 2015). This may apply to metaphorical video advertisements

as well. In this case, there may be limited opportunities to elicit the pleasure of resolving metaphorical puzzles. On the other hand, the emotional appeals in a dynamic video may not always be positive, especially in social marketing of health communication. For instance, fear appeals are often used in health communication advertisements to illustrate dangers and persuade viewers to change their behaviors (Dillard et al., 1996; Lewis et al., 2008), one common example being images of damaged lungs in anti-cigarette advertisements. A meta-analysis of 127 empirical studies revealed that fear appeals could positively influence attitude, intention, and behaviors when efficacy statements depicting desirable outcomes from the recommended actions were displayed (Tannenbaum et al., 2015). When metaphors are used to highlight consumers' needs, they may assist in creating a problematic scenario in negative appeals. Therefore, our second hypothesis is that metaphors can reinforce both negative appeals and positive appeals in video advertisements, i.e., metaphorical conditions will influence affective elaborations.

H2: Metaphor conditions will have an influence on the affective elaboration of video advertisements.

1.2 The influence of product types on responses to advertisements

Product type has been shown to influence the effectiveness of advertising, as consumers search for information according to product type varies (Franke et al., 2004; Guiltinan, 1987; Huang et al., 2009). While there are many categories of products, the economics of information (EOI) (Bloom, 1989; Ford et al., 1990; Rubin, 2000) approach distinguishes products by how consumers evaluate critical attributes and then categorizes them as search products and experience products. This is based on the interplay of information between

195 advertising messages from marketers, and that which is accessible to consumers. A search
196 product possesses major attributes that could be standardized and valuated before
197 consumption (Bloom & Reve, 1990; Guiltinan, 1987; Jiménez & Mendoza, 2013). Examples
198 include pens, picture books, and towels. An experience product can only be evaluated
199 effectively after being consumed (Bloom & Reve, 1990; Guiltinan, 1987; Jiménez &
200 Mendoza, 2013), such as hotel services, haircuts, and massages. Although the internet enables
201 consumers to collect reviews on both search products and experience products ahead of
202 purchase (Huang et al., 2009; Klein, 1998), empirical research has shown that consumers still
203 evaluate the information of reviews differently for the two types of products (Huang et al.,
204 2009; Jiménez & Mendoza, 2013). Reviews of a search product were deemed credible when
205 details of products' attributes were reported, whereas for an experience product, only reviews
206 that showed consistent feedback from different users were considered credible (Jiménez &
207 Mendoza, 2013). These findings support the distinction between search products and
208 experience products in contemporary marketing. We hypothesize that perceptions of
209 experience products and search products will be different due to the intrinsic difference in the
210 concreteness of products' attributes. Our third hypothesis is as follows:
211
212 H3: Product types will have an influence on (a) perceived complexity and (b) cognitive
213 elaboration of video advertisements.
214
215 *1.3 Influences of metaphor types and product types on responses to advertisements*
216
217 The interaction effects of metaphors and product types have been investigated by a number of
218 studies (Ang & Lim, 2006; Chang et al., 2018; Chang & Yen, 2013; Pérez-Sobrino &
219 Littlemore, 2017). It has been shown that metaphors in advertisements work through different

mechanisms depending on the product type. Since metaphors generally enhance perceptions of the sophistication and excitement of a brand (Ang & Lim, 2006), the use of metaphors may be more beneficial for products with tangible and concrete attributes. However, for experience products that were generally perceived to be more sophisticated and less sincere (Chang et al., 2018), more caution should be exercised when using metaphors. Displaying information about the product itself may help the consumers. Chang et al. (2018) also showed that in print advertisements, placing the image of the product next to the pictorial metaphor was more effective for experience products than for search products. To summarize, using metaphors in appropriate ways according to the type of product increases the effectiveness of print advertisements. We hypothesize that this interaction effect still applies to video advertisements.

H4: There will be an interaction effect between metaphor conditions and product types on (a) perceived complexity, (b) attitudes toward the ad, and (c) purchase intention.

Since search products possess predominantly tangible and concrete attributes, when the product is involved as a target in a feature-highlighting metaphor, viewers may need to compare two concrete concepts. However, when an experience product is advertised by a feature-highlighting metaphor, viewers may be more likely to use a more concrete concept to understand or experience an abstract concept. Since needs-highlighting metaphors address the problems to be solved, the concreteness of the target and source could be more flexible. The concreteness of the target and source is important for comprehending a metaphor (Gentner, 1983; Glucksberg et al., 1997; Katz, 1989). Wiemer-Hastings and Xu (2005) demonstrated that participants generally employed personal experiences to interpret metaphors and rated similarities between the target and the source higher if a metaphor had an abstract target. This

may be because objective attributes of two concrete concepts restricted inferences (Xu, 2010), whereas similarities of two abstract concepts could be extracted through thematic relations, such as spatial proximity, causal relation, and temporal contingency (Barsalou & Wiemer-Hastings, 2005). Since needs-highlighting metaphors tend to exploit an abstract target to metaphorize a problem or consumers' needs, we hypothesize that metaphors with an abstract concept will elicit more cognitive elaboration than metaphors with a concrete concept.

H5: There will be an interaction effect between metaphor conditions and product types on cognitive elaboration.

To summarize, research has shown the effects of metaphors and product types on the effectiveness of advertisements, including perceived complexity, cognitive elaboration, affective elaboration, attitudes toward the ad, and purchase intention (Ang & Lim, 2006; Burgers et al., 2015; Chang et al., 2018; Chang & Yen, 2013; Jeong, 2008; Kim et al., 2012; Mulken et al., 2010; Pérez-Sobrino et al., 2019). However, most studies examined the effectiveness of metaphors in print advertisements and focused on the quantitative aspect, leaving the extent to which these findings could be generalized to video advertisements and the experience of viewers underexplored. Due to the intrinsic differences between print advertisements and temporal and dynamic video advertisements, we hypothesize that the mechanisms underlying the effectiveness of metaphors in video advertisements are unlikely to be the same as those in print advertisements. The mechanisms underlying the effectiveness of metaphors in video advertisements can hardly be gauged by purely analyzing numerical data. It is also necessary to probe into the experience of viewers, especially when the context pertains to minority groups. Therefore, we designed a within-subject experiment and collected both quantitative and qualitative data to both examine the effectiveness of

metaphors in video advertisements, and explore viewers' experience of metaphors.

The research questions to be addressed are as follows:

(a) To what extent do metaphors influence the effectiveness of video advertisements for different types of products?

(b) How do metaphors influence viewers' experience in advertisements for depression?

Below is a summary of the five hypotheses underlying research question (a):

H1: Metaphor conditions will have an influence on (a) perceived complexity and (b) cognitive elaboration of video advertisements.

H2: Metaphor conditions will have an influence on the affective elaboration of video advertisements.

H3: Product types will have an influence on (a) perceived complexity and (b) cognitive elaboration of video advertisements.

H4: There will be an interaction effect between metaphor conditions and product types on (a) perceived complexity, (b) attitudes toward the ad, and (c) purchase intention.

H5: There will be an interaction effect between metaphor conditions and product type on cognitive elaboration.

2. Method

This study is based on a 3 (metaphor uses: feature-highlighting metaphors vs. needs-highlighting metaphors vs. literal) x 2 (product types: search products vs. experience products) within-subject experiment. Following the explanatory sequential design, quantitative data were collected from online questionnaires and qualitative data were

295 collected from semi-structured interviews. Ethics approval was obtained from the Human
296 Subjects Ethics Sub-committee of the Hong Kong Polytechnic University (Reference
297 number: HSEARS20190219013) prior to data collection.
298
299 *2.1 Stimulus development*
300
301 The stimulus materials were six video advertisements in Mandarin Chinese about
302 antidepressants and counseling services that were created by an ad company, according to the
303 requirements of the researchers. The video advertisements represent the six combinations of
304 metaphor and product types (see Table 1). Two fictitious brands were created to prevent
305 associations with brands and products in real life. The version with English subtitles (added
306 by the first author) can be found at
307 https://osf.io/s4qyx/?view_only=6c718253ddcf40cbacbb7571fdd20cf7.
308
309 Table 1.
310 An overview of six conditions
311

	Search product **Name of the medicine: Lexin**	**Experience product** **Name of the service: Xinle**
Feature-Highlighting Metaphors	Ad 1 Feature-Highlighting Metaphor: *LEXIN IS A FRIEND* Supporting Metaphors: *SEROTONIN IMPROVEMENT IS ENCOURAGEMENT*	Ad 4 Feature-Highlighting Metaphor: *XINLE IS SUN* Supporting Metaphors: *COGNITIVE BEHAVIOR THERAPY IS SUNSHINE* *DIALECTICAL BEHAVIOR THERAPY*

	ENHANCING SIGNALS BETWEEN CELLS IS CONSOLATION	*IS SUNSHINE*	
Needs-Highlighting Metaphors	Ad 2 Needs-Highlighting Metaphor: *DEPRESSION IS A MONSTER*	Ad 5 Needs-Highlighting Metaphor: *DEPRESSION IS A LABYRINTH*	
Literal	Ad 3 Non-metaphorical	Ad 6 Non-metaphorical	

The design of the stimulus was guided by content analyses of creative metaphors in another related study of a Chinese ad corpus (Pan & Tay, 2023). Details of ad content, lengths of the videos, background music, narrators, and certain images were controlled to ensure comparability. The intervention concerned the use of metaphors. Feature-highlighting metaphors were created to frame the products as something else through the interplay between spoken language, written language, and moving images. Needs-highlighting metaphors were created to frame 'depression' as another thing through the interactions of multisensory elements. The design of metaphors about depression and the associated solutions was underpinned by the conceptual metaphors DEPRESSION IS A DARK MONSTER, DEPRESSION IS A DARK CONFINING SPACE (Forceville & Paling, 2018). Table 2 displays the outline of the intervention where the literal condition served as the baseline for comparison.

Table 2.

Outline of the intervention

Advertisements	**Problem**	**Product**	**Punchline**

Ad1 (Medicine)	Literal	Features-Highlighting Metaphor: *LEXIN IS A FRIEND* Supporting Metaphors: *SEROTONIN IMPROVEMENT IS ENCOURAGEMENT* *ENHANCING SIGNALS BETWEEN CELLS IS CONSOLATION*	Literal
Ad2 (Medicine)	Needs-Highlighting Metaphor: *DEPRESSION IS A MONSTER*	Literal	Literal
Ad3 (Medicine)	Literal	Literal	Literal
Ad4 (Service)	Literal	Features-Highlighting Metaphor: *XINLE IS SUN* Supporting Metaphors: *COGNITIVE BEHAVIOR THERAPY IS SUNSHINE* *DIALECTICAL BEHAVIOR THERAPY IS SUNSHINE*	Literal
Ad5 (Service)	Needs-Highlighting Metaphor: *DEPRESSION IS LABYRINTH*	Literal	Literal
Ad6 (Service)	Literal	Literal	Literal

These video advertisements were finalized after considering the results from a pilot study where eight native Chinese speakers (excluded from the norming study and the main study) provided suggestions for adjustments. The changes included shortening the length from 21 seconds to 16 seconds, consistency of filmic techniques, and adjusting the volume and pace of the background music.

A norming study was carried out on the final version of the videos. Twenty native speakers rated six videos for understandability (UND), metaphoricity (MET), naturalness (NAT), familiarity (FAM), and similarity (SIM) along a 7-point Likert Scale (Cardillo, Schmidt, Kranjec, & Chatterjee, 2010). Since product type (PT) was involved in the design,

the degree of experience/search value was also included in the rating (Chang et al., 2018). Understandability means the extent to which the meaning of the video is clear. Metaphoricity means how metaphorical the manipulation component is perceived to be. Naturalness refers to the likelihood that a native speaker may spontaneously create an ad in a particular manner. Familiarity accounts for the extent to which the stimuli are created in different ways compared with advertisements in the public. Similarity means the extent to which the main messages delivered by different stimuli are the same. In this study, comparable experimental stimuli with good validity need to be significantly different with respect to metaphoricity (MET) but non-significantly different in terms of understandability (UND), naturalness (NAT), and familiarity (FAM). The mean score for similarity (SIM) needs to be 5.0 or above along a 7-point scale (Tay, Huang, & Zeng, 2019; Cardillo et al., 2010; Citron & Goldberg, 2014).

The results from the norming study demonstrated that the stimuli were equivalent regarding UND, NAT, FAM and SIM, but differed significantly in MET and PT. One-Way Repeated Measures ANOVA found statistical significance in ratings of MET, F (5, 120) = 32.6, $p < .001$, $\eta p2 = .58$ (see Table 3). Post-hoc tests showed that metaphorical conditions for both search products and experience products were perceived to be more metaphorical than literal conditions, $p < .001$. The mean score of the SIM was above 5.0 ($M = 6.14$, $SD = 0.98$). Ratings of experience/search value (i.e. 1 = 'can be determined only after purchase' to 7 = 'can be easily determined prior to purchase') showed that the antidepressant received higher scores ($M = 4.62$, $SD = 2.16$) than the counseling service ($M = 1.9$, $SD = 1.09$) at a significant level ($t(20) = 5.11$, $p < .001$, $d = 1.59$).

Table 3.

Statistics of the norming study

	UND	NAT	FAM	MET
P values	$p = .87$	$p = .44$	$p = .49$	$p < .001$
Ad1 Search Product with Feature-Highlighting Metaphors	*Mean* = 6.55, *SD* = 0.92	*Mean* = 5.76, *SD* = 1.22	*Mean* = 5.57, *SD* = 1.33	*Mean* = 4.11, *SD* = 1.45
Ad2 Search Product with Needs-Highlighting Metaphors	*Mean* = 6.38, *SD* = 0.96	*Mean* = 5.29, *SD* = 1.49	*Mean* = 5.67, *SD* = 1.11	*Mean* = 4.60, *SD* = 1.10
Ad3 Search Product Without Metaphors	*Mean* = 6.31, *SD* = 0.96	*Mean* = 5.26, *SD* = 1.32	*Mean* = 5.48, *SD* = 1.29	*Mean* = 2.21, *SD* = 1.11
Ad4 Experience Product with Feature-Highlighting Metaphors	*Mean* = 6.40, *SD* = 1.02	*Mean* = 5.67, *SD* = 1.24	*Mean* = 5.26, *SD* = 1.39	*Mean* = 5.02, *SD* = 1.31
Ad5 Experience Product with Needs-Highlighting Metaphors	*Mean* = 6.60, *SD* = 0.87	*Mean* = 5.67, *SD* = 1.20	*Mean* = 5.62, *SD* = 1.32	*Mean* = 5.63, *SD* = 1.20
Ad6 Experience Product Without Metaphors	*Mean* = 6.26, *SD* = 1.17	*Mean* = 5.05, *SD* = 1.53	*Mean* = 6.05, *SD* = 1.12	*Mean* = 2.00, *SD* = 1.00

2.2 Measures

Dependent variables included perceived complexity, cognitive elaboration, affective elaboration, attitude toward the ad, and purchase intention. The measures were a set of seven-point Likert scales as shown in Table 4. All items were derived from the literature and were developed originally in English. In the survey, these items were translated into Mandarin by the first author and then checked by the second author (an L1 speaker of English and Chinese) to ensure the equivalence of meaning.

Perceived complexity: Items were extracted from Mulken et al. (2010). Participants rated on a seven-point scale the extent to which they agreed with the statements.

Cognitive elaboration: Items that measure the degree of elaboration rather than qualitative

details of content were incorporated from Kim et al. (2012).

Affective elaboration: Two items measuring the degree of emotional elaboration were from Kim et al. (2012). This choice was made with two considerations. First, the present measure of affective elaboration focuses on the intensity of emotional arousal rather than a specific type of emotion. Second, the number of items had to be minimized as watching six video advertisements might lead to participant fatigue. Thus, the 18-item Pleasure-Arousal-Dominance (PAD) emotional scale by Mehrabian and Russell (1974) appears to be impractical in this context.

Attitude toward the ad: Participants rated the extent to which they agreed that the ad was 'good', 'favourable', and 'pleasant' (MacKenzie & Lutz, 1989).

Purchase intention: Three items developed by Maheswaran and Meyers-Levy (1990) were adopted to measure the perceived worthiness of the product, willingness to purchase it and the probability of recommending it to family or friends.

Table 4.

Variables and measures in surveys

Variables	**Measures**	**Cronbach's α**
Perceived Complexity	1. I think this ad is clear and straightforward 2. I think this ad is easy to understand (Mulken et al., 2010)	$\alpha = .89$
Cognitive Elaboration	3. I have many thoughts in response to the ad 4. The ad elicited lots of thinking (Kim et al., 2012)	$\alpha = .94$

Affective Elaboration	5. I had many feelings in response to the ad 6. The ad elicited a lot of feelings (Kim et al., 2012)	α = .92
Attitudes Toward the Ad	7. This ad is good 8. This ad is favorable 9. This ad is pleasant (MacKenzie & Lutz, 1989)	α = .94
Purchase Intention	10. This product is of worth 11. I'm willing to buy this product 12. I'm willing to recommend this product to my family or friends (Maheswaran & Meyers-Levy, 1990)	α = .92

404

405 *2.3 Participants and procedure*

406 Table 5.
407 An overview of age and gender
408

	Age	Gender		Valid	Excluded	Total
		Male	Female			
Online Surveys	Mean = 25.9, SD = 7.69	91	208	299	24	323
Interview	Mean = 25.3, SD = 3.68	9	20	29	3	32

409

410 The survey experiment was carried out through the Chinese *Tencent* survey platform. A total
411 of 323 native Chinese speakers participated in the main study through convenience sampling.
412 Thirty-two participants indicated their willingness in the survey to join the follow-up
413 interview. Table 5 shows an overview of the age and gender of the participants. Six versions
414 of surveys were created where the sequences of videos were different (see Table 6) to control
415 the order effects. Each participant watched all six advertisements following a random
416 sequence from A to F. The sequence in Table 6 followed a balanced Latin square by which
417 every single condition of stimulus follows every other condition only once.

418

Table 6.

The balanced Latin square for six conditions[ii]

Subjects	The Sequence of Six Conditions					
A	1	2	6	3	5	4
B	2	3	1	4	6	5
C	3	4	2	5	1	6
D	4	5	3	6	2	1
E	5	6	4	1	3	2
F	6	1	5	2	4	3

The first part of the survey explained the basic information and purpose of this study and obtained consent from participants. The second part presented each video ad and the associated 12 items of the seven-point scale. The first author checked all the surveys and provided compensation of 20 RMB through the platform to each respondent. Responses with the same answer for all questions or those that did not provide consent were excluded. Ultimately, 299 valid surveys and 29 valid interviews were collected.

2.4 Analysis

For each dependent variable, a two-way repeated-measures ANOVA was conducted to examine the main effects of two independent variables (metaphor conditions, product types) and their interaction. Assumptions of two-way repeated ANOVA were checked. Skewness and Kurtosis were used to evaluate the normality of the distribution. Mauchly's Test of Sphericity tested the extent to which the variances of difference between all combinations of related groups were equal. The assumptions of sphericity were violated and Greenhouse-Geisser estimates of sphericity were adopted to correct degrees of freedom.

Semi-structured interviews were carried out and analyzed following the six-phase thematic analysis procedure (Braun & Clarke, 2006). The first author had face-to-face

interviews with all participants. Each interview lasted approximately 45 minutes. The guiding questions were about: (1) impressive advertisements and reasons, (2) comparisons with advertisements in other conditions, (3) recognized metaphorical advertisements, and (4) preference of product types in life. The sample questions were as follows: *Which ad is the most impressive to you? Why did you give a higher score to this ad? Have you noticed any metaphor in the advertisements? If there is a need, then which type of products do you prefer to use?* The purpose of interviews was to probe the experience of participants in terms of five theoretically interesting dependent variables (i.e., perceived complexity, cognitive elaboration, affective elaboration, attitudes toward advertisements, and purchase intention). Since survey results could not generate underlying reasons for ratings and experiences of participants, these interviews were used to extract qualitative information and achieve synergy of different research methods.

Semi-structured interviews with 32 participants probed into the experience of viewers, including three pilot interviews to improve the feasibility and accuracy of questions. Transcripts of 29 valid interviews were analyzed following a thematic analysis procedure (Braun & Clarke, 2006). The first phase involved familiarization with the data by reading the transcripts multiple times, as suggested by Terry et al. (2017). In the second phase, an initial set of codes (e.g., “multimodal appeals,” “mapping features,” “mental images”) was generated by iteratively examining the entire transcripts and constant comparison of relevant segments. In the third phase, related codes were merged into themes (e.g., perceived complexity, cognitive elaboration, affective elaboration), which were reviewed in the fourth phase to ensure accuracy in reflecting the dataset. In the fifth phase, the themes were carefully checked regarding names and scopes with reference to our dependent variables to ensure their distinctiveness and relevance in addressing the second research question. Finally, relevant data extracts were selected and presented.

3. Results and findings

The results from surveys and findings from the interviews supported the main effects and the interaction effect of metaphor and product types on cognitive elaboration, affective elaboration, attitudes, and purchase intention, but not the influence on perceived complexity.

3.1 Results from surveys

Table 7 displays a summary of our survey findings. In the following sections, descriptive statistics for each dependent variable under the six conditions will be reported first, followed by results from two-way repeated ANOVA tests. The six conditions are the literal condition for experience products (COMLE), the literal condition for search products (COMLS), the needs-highlighting metaphor condition for experience products (COMNE), the needs-highlighting metaphor condition for search products (COMNS), the feature-highlighting metaphor condition for experience products (COMFE), and the feature-highlighting metaphor condition for experience products (COMFS).

Table 7.

A summary of survey findings

Hypotheses	**Outcome**
H1 (a): Metaphor conditions will have an influence on perceived complexity of video advertisements.	Rejected
H1 (b): Metaphor conditions will have an influence on cognitive elaboration of	Accepted

video advertisements.	
H2: Metaphor conditions will have an influence on the affective elaboration of video advertisements.	Accepted
H3 (a): Product types will have an influence on perceived complexity of video advertisements.	Rejected
H3 (b): Product types will have an influence on cognitive elaboration of video advertisements.	Accepted
H4 (a): There will be an interaction effect between metaphor conditions and product types on perceived complexity.	Accepted
H4 (b): There will be an interaction effect between metaphor conditions and product types on attitudes toward the ad.	Accepted
H4 (c): There will be an interaction effect between metaphor conditions and product types on purchase intention.	Accepted
H5: There will be an interaction effect between metaphor conditions and product types on cognitive elaboration.	Accepted

3.1.1 Perceived complexity

Table 8 shows the range of ratings for each condition regarding perceived complexity. The Skewness and Kurtosis results suggested that the distribution of ratings for each condition was normal, satisfying the requirement of a normal distribution for two-way repeated ANOVA. The descriptive plot (Figure 2) shows the comparison of the mean and the associated standard deviation of each condition, summarizing the trends of perceived complexity across product types and metaphor conditions.

Table 8.

Descriptive statistics of perceived complexity

	COMLE	COMLS	COMNS	COMNE	COMFE	COMFS
Valid	299	299	299	299	299	299
Missing	0	0	0	0	0	0
Mean	2.630	2.441	2.533	2.600	2.515	2.584
Std. Deviation	1.286	1.307	1.288	1.272	1.257	1.238
Skewness	0.763	0.940	0.680	0.609	0.640	0.726
Std. Error of Skewness	0.141	0.141	0.141	0.141	0.141	0.141
Kurtosis	0.448	0.714	-0.042	-0.057	-0.065	0.404
Std. Error of Kurtosis	0.281	0.281	0.281	0.281	0.281	0.281
Minimum	1.000	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	6.500	7.000

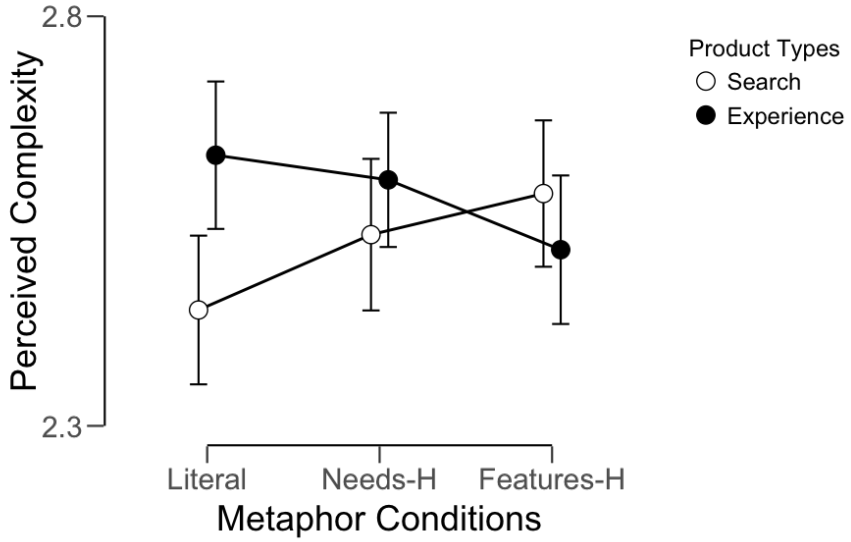

Figure 2. The descriptive plot for perceived complexity

The results from two-way repeated ANOVA found a statistically significant interaction effect between product types and metaphor conditions, F (1.91, 569.69) = 17.09, p = .006, $\eta p2$ = .03. The main effects of metaphor conditions and product types on perceived complexity were not significant, as shown in Table 9. Simple main effect analysis found a statistically significant difference between non-metaphorical advertisements for search

products and non-metaphorical advertisements for experience products, F (1, 7.592) = 17.09, p = .006, $\eta p2$ = .03, signaling that non-metaphorical advertisements for experience products (M = 2.63, SD = 1.29) were perceived as more complicated than non-metaphorical advertisements for search products (M = 2.44, SD = 1.31) with a small effect size, as shown in Table 10. Overall, these results support H4 (a) but reject H1(a) and H3 (a).

Table 9.

Within subjects effects-Perceived complexity

	Sphericity Correction	Sum of Squares	df	Mean Square	F	p	η_p^2
Metaphor Conditions	None	0.288	[a] 2.000	[a] 0.144	[a] 0.282	[a] 0.754	[a] 0.001
	Greenhouse-Geisser	0.288	[a] 1.935	[a] 0.149	[a] 0.282	[a] 0.747	[a] 0.001
Residual	None	303.712	596.000	0.510			
	Greenhouse-Geisser	303.712	576.629	0.527			
Product Types	None	1.748	1.000	1.748	2.303	0.130	0.008
	Greenhouse-Geisser	1.748	1.000	1.748	2.303	0.130	0.008
Residual	None	226.169	298.000	0.759			
	Greenhouse-Geisser	226.169	298.000	0.759			
Metaphor Conditions ✻ Product Types	None	4.962	[a] 2.000	[a] 2.481	[a] 3.822	[a] 0.022	[a] 0.013
	Greenhouse-Geisser	4.962	[a] 1.912	[a] 2.596	[a] 3.822	[a] 0.024	[a] 0.013
Residual	None	386.872	596.000	0.649			
	Greenhouse-Geisser	386.872	569.686	0.679			

Note. Type III Sum of Squares

[a] Mauchly's test of sphericity indicates that the assumption of sphericity is violated ($p < .05$).

Table 10.

Simple main effects-Product types-Perceived complexity

Level of Metaphor Conditions	Sum of Squares	df	Mean Square	F	p
Literal	5.338	1	5.338	7.592	0.006
Needs-H	0.669	1	0.669	0.955	0.329
Features-H	0.703	1	0.703	1.076	0.300

It could be deduced from Figure 2 that metaphors seem to mediate the perceived complexity of product types. When advertising search products, the condition of feature-highlighting metaphor (M = 2.58, SD = 1.24) was perceived to be more complicated than the condition of a needs-highlighting metaphor (M = 2.53, SD = 1.29) and the literal condition (M = 2.44, SD = 1.31). In other words, metaphor made ad for search products less transparent than non-metaphorical advertisements. Feature-highlighting metaphors were perceived to be more complicated than needs-highlighting metaphors. When advertising experience products, the condition of feature-highlighting metaphor (M = 2.52, SD = 1.26) was perceived to be less complicated than the condition of needs-highlighting metaphors (M = 2.60, SD = 1.27) and the literal condition (M = 2.63, SD = 1.29). In other words, metaphors help viewers comprehend the meaning of advertisements for experience products. Nevertheless, the simple main effects of metaphors at the product level were non-significant, indicating that while metaphors mediated perceived complexity, the difference did not achieve a statistically significant level.

3.1.2 Cognitive elaboration

Table 11 displays descriptive details of ratings for cognitive elaboration, including evaluation of their normality. Figure 3 shows the descriptive plot illustrating patterns of cognitive elaboration across metaphor conditions and product types.

Table 11.
Descriptive statistics of cognitive elaboration

	COGLE	COGNS	COGNE	COGFE	COGFS	COGLS
Valid	299	299	299	299	299	299
Missing	0	0	0	0	0	0
Mean	3.413	3.724	3.709	3.799	3.388	3.467
Std. Deviation	1.578	1.616	1.535	1.536	1.527	1.580
Skewness	0.182	0.006	0.041	-0.081	0.109	0.118
Std. Error of Skewness	0.141	0.141	0.141	0.141	0.141	0.141
Kurtosis	-0.814	-0.762	-0.548	-0.647	-0.792	-0.679
Std. Error of Kurtosis	0.281	0.281	0.281	0.281	0.281	0.281
Minimum	1.000	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000	7.000

Table 11.
Descriptive statistics of cognitive elaboration

	COGLE	COGNS	COGNE	COGFE	COGFS	COGLS

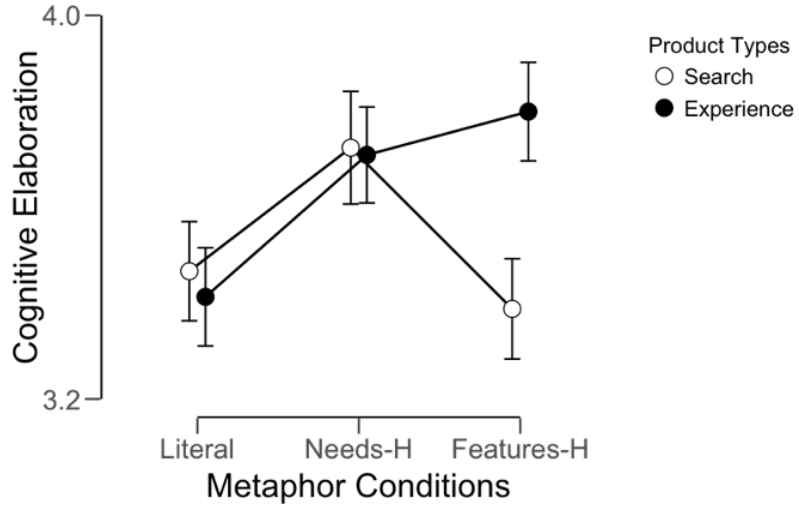

Figure 3. The descriptive plot for cognitive elaboration

The results from two-way repeated ANOVA found a significant main effect of metaphor conditions, F (1.96, 584.09) = 15.458, $p < .001$, $\eta p2 = .05$, a significant main effect of product types, F (1, 298) = 6.52, $p = .01$, $\eta p2 = .02$, and a significant interaction effect between metaphor conditions and product types, F (1.93, 575.37) = 10.53, $p < .001$, $\eta p2 = .03$ (see Table 12). These results supported H1(b), H3(b), and H(5) that both metaphor conditions and product types significantly influenced cognitive elaboration and that there was also an interaction effect.

Table 12. Within subjects effects-Cognitive elaboration

	Sphericity Correction	Sum of Squares	df	Mean Square	F	p	η_p^2
Metaphor Conditions	None	22.997	[a] 2.000	[a] 11.498	[a] 15.458	[a] < .001	[a] 0.049

	Sphericity Correction	Sum of Squares	df	Mean Square	F	p	η_p^2
	Greenhouse-Geisser	22.997	[a] 1.960	[a] 11.733	[a] 15.458	[a] < .001	[a] 0.049
Residual	None	443.336	596.000	0.744			
	Greenhouse-Geisser	443.336	584.090	0.759			
Product Types	None	5.856	1.000	5.856	6.520	0.011	0.021
	Greenhouse-Geisser	5.856	1.000	5.856	6.520	0.011	0.021
Residual	None	267.685	298.000	0.898			
	Greenhouse-Geisser	267.685	298.000	0.898			
Metaphor Conditions ✻ Product Types	None	19.905	[a] 2.000	[a] 9.952	[a] 10.528	[a] < .001	[a] 0.034
	Greenhouse-Geisser	19.905	[a] 1.931	[a] 10.309	[a] 10.528	[a] < .001	[a] 0.034
Residual	None	563.428	596.000	0.945			
	Greenhouse-Geisser	563.428	575.368	0.979			

Note. Type III Sum of Squares

[a] Mauchly's test of sphericity indicates that the assumption of sphericity is violated ($p < .05$).

555

556 The simple main effects analyses of metaphor conditions (Table 13) revealed that for search
557 products, the condition of needs-highlighting metaphors ($M = 3.72$, $SD = 1.62$) elicited more
558 cognitive elaboration than the literal condition ($M = 3.47$, $SD = 1.58$) and the condition of
559 feature-highlighting metaphor ($M = 3.39$, $SD = 1.53$), at a statistically significant level, F (2,
560 596) = 10.10, $p < .001$, $\eta p2 = .03$. For experience products, metaphorical conditions, i.e. both
561 feature-highlighting metaphors ($M = 3.80$, $SD = 1.54$) and needs-highlighting metaphors (M
562 = 3.71, $SD = 1.54$) outperformed the literal condition ($M = 3.41$, $SD = 1.58$), at a significant

563 level, F (2, 596) = 15.763, $p < .001$, $\eta p2 = .05$. To summarize, metaphorical conditions
564 elicited more cognitive elaboration than literal advertisements, regardless of product types.

Table 13.
Simple main effects-Metaphor conditions-Cognitive elaboration

Level of Product Types	Sum of Squares	df	Mean Square	F	p
Search	18.486	2	9.243	10.104	< .001
Experience	24.416	2	12.208	15.763	< .001

565

566 The simple main effects analyses of product types (see Table 14) only found a statistically
567 significant difference at the condition of features-highlighting metaphor, yielding an F ratio
568 of F (1, 298) = 28.11, $p < .001$, $\eta p2 = .09$. This results implied that that feature-highlighting
569 metaphors generated more cognitive elaboration in advertisements for experience products
570 than advertisements for search products.

571

Table 14.

Simple main effects-Product types-Cognitive elaboration

Level of Metaphor Conditions	Sum of Squares	df	Mean Square	F	p
Literal	0.428	1	0.428	0.465	0.496
Needs-H	0.034	1	0.034	0.035	0.852
Features-H	25.299	1	25.299	28.110	< .001

572

573 The interaction of product types and metaphor conditions suggested that the effect of
574 metaphors on cognitive elaboration varies across product types. The above statistical results
575 demonstrated that the condition of features-highlighting metaphor exerted a greater influence
576 on experience products compared to search products, whereas the condition of needs-
577 highlighting metaphor outperformed the literal condition, regardless of product types.

578

579 *3.1.3 Affective Elaboration*

Table 15 shows the range of ratings and normality evaluation for affective elaboration in each condition. An overview of how ratings of affective elaboration across six conditions changed is presented in Figure 4.

Table 15.

Descriptive statistics for affective elaboration

	AFFELE	AFFENS	AFFENE	AFFFE	AFFFS	AFFLS
Valid	299	299	299	299	299	299
Missing	0	0	0	0	0	0
Mean	3.482	3.883	3.763	3.953	3.478	3.545
Std. Deviation	1.548	1.550	1.539	1.519	1.535	1.576
Skewness	0.078	-0.077	0.039	-0.160	0.074	0.123
Std. Error of Skewness	0.141	0.141	0.141	0.141	0.141	0.141
Kurtosis	-0.831	-0.586	-0.536	-0.601	-0.757	-0.716
Std. Error of Kurtosis	0.281	0.281	0.281	0.281	0.281	0.281
Minimum	1.000	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000	7.000

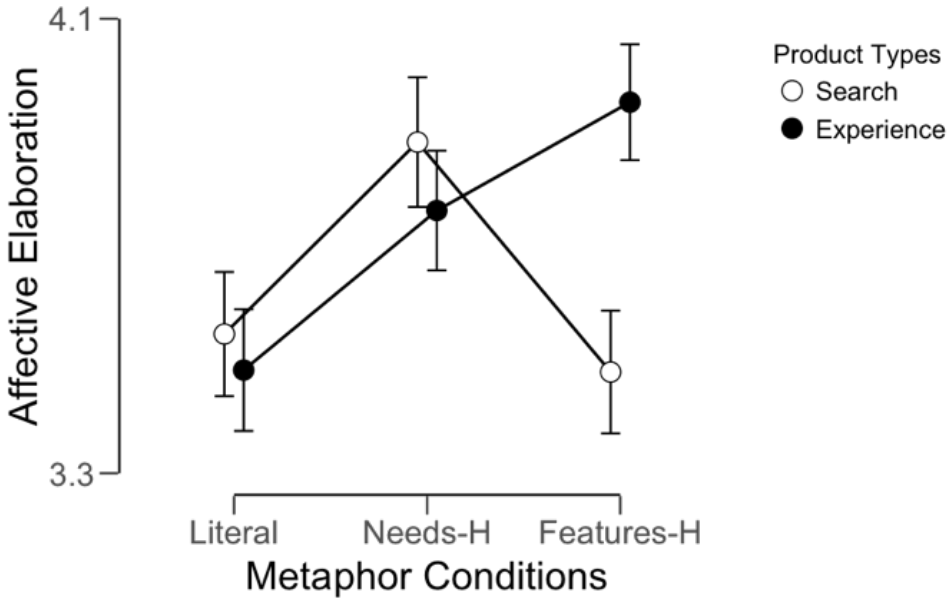

Figure 4. The descriptive plot-Affective elaboration

The results from two-way repeated ANOVA revealed a statistical significance of the main effect of metaphor conditions, F (1.95, 581.85) = 19.99, p < .001, $\eta p2$ = .06, the main effect of product types, F (1, 298) = 4.7, p = .03, $\eta p2$ = .02, and the interaction between metaphor conditions and product types F (1.94, 579.43) = 15.37, p < .001, $\eta p2$ = .05, on perceived affective elaboration (see Table 16). These results support H2, that metaphor conditions influence perceived affective elaboration and demonstrate a main effect of product type and an interaction effect.

Table 16.

Within subjects effects-Affective elaboration-Surveys

	Sphericity Correction	Sum of Squares	df	Mean Square	F	p	η_p^2
Metaphor Conditions	None	29.522	[a] 2.000	[a] 14.761	[a] 19.988	[a] < .001	[a] 0.063
	Greenhouse-Geisser	29.522	[a] 1.953	[a] 15.120	[a] 19.988	[a] < .001	[a] 0.063
Residual	None	440.145	596.000	0.738			
	Greenhouse-Geisser	440.145	581.849	0.756			
Product Types	None	4.219	1.000	4.219	4.700	0.031	0.016
	Greenhouse-Geisser	4.219	1.000	4.219	4.700	0.031	0.016
Residual	None	267.531	298.000	0.898			
	Greenhouse-Geisser	267.531	298.000	0.898			
Metaphor Conditions * Product Types	None	32.271	[a] 2.000	[a] 16.135	[a] 15.369	[a] < .001	[a] 0.049
	Greenhouse-Geisser	32.271	[a] 1.944	[a] 16.597	[a] 15.369	[a] < .001	[a] 0.049
Residual	None	625.729	596.000	1.050			
	Greenhouse-Geisser	625.729	579.425	1.080			

Note. Type III Sum of Squares

The simple main effect analyses of metaphor conditions found that the effect on both search products and experience products was statistically significant, with F (2, 596) = 14.75, p

603 < .001, $\eta p2$ = .05 and F (2, 596) = 20.16, p < .001, $\eta p2$ = .06, respectively (see Table 17). For
604 search products, needs-highlighting metaphors (M = 3.88, SD = 1.55) yielded greater
605 affective elaboration than the literal condition (M = 3.55, SD = 1.53) and feature-highlighting
606 metaphors (M = 3.48, SD = 1.54). For experience products, feature-highlighting metaphors
607 (M = 3.95, SD = 1.52) and needs-highlighting metaphors (M = 3.76, SD = 1.54) elicited
608 greater emotional responses than the literal condition (M = 3.48, SD = 1.55).
609

Table 17.
Simple main effects-Metaphor conditions-Affective elaboration

Level of Product Types	**Sum of Squares**	**df**	**Mean Square**	**F**	**p**
Search	28.140	2	14.070	14.754	< .001
Experience	33.652	2	16.826	20.157	< .001

610
611
612 The simple main effect analyses of product types (Table 18) revealed statistically significant
613 differences within feature-highlighting metaphors, F (1, 298) = 35.01, p < .001, $\eta p2$ = .11.
614 When advertising experience products, feature-highlighting metaphors yielded higher scores
615 (M = 3.95, SD = 1.52) of affective elaborations than search products (M = 3.48, SD = 1.54).
616

Table 18.

Simple main effects-Product types-Affective elaboration

Level of Metaphor Conditions	**Sum of Squares**	**df**	**Mean Square**	**F**	**p**
Literal	0.604	1	0.604	0.573	0.450
Needs-highlighting	2.167	1	2.167	2.209	0.138
Feature-highlighting	33.719	1	33.719	35.008	< .001

617

3.1.4 Attitude Toward the Ad

Descriptive details of ratings of attitude toward the ad and evaluation of normality are shown in Table 19.

Table 19.

Descriptive statistics of attitude

	ATTLE	ATTNS	ATTNE	ATTFE	ATTFS	ATTLS
Valid	299	299	299	299	299	299
Missing	0	0	0	0	0	0
Mean	3.804	3.842	3.979	4.246	3.625	3.715
Std. Deviation	1.484	1.557	1.471	1.477	1.516	1.585
Skewness	-0.004	-0.007	-0.134	-0.247	0.109	0.039
Std. Error of Skewness	0.141	0.141	0.141	0.141	0.141	0.141
Kurtosis	-0.436	-0.769	-0.444	-0.367	-0.567	-0.711
Std. Error of Kurtosis	0.281	0.281	0.281	0.281	0.281	0.281
Minimum	1.000	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000	7.000

The results from a two-way ANOVA showed that the main effects of metaphor conditions and product types were statistically significant, with F (1.95, 581.94) = 6.95, p = .001, $\eta p2$ = .02, and F (1, 298) = 6.95, p < .001, $\eta p2$ = .09, respectively (see Table 20). The interaction effect was also significant, F (1.95, 581.99) = 13.25, p <.001, $\eta p2$ = .04, implying that the influence of metaphor conditions on attitudes varied across product types. Figure 5 displays how ratings of attitudes varied across six conditions. These results supported H4(b), which hypothesized an interaction effect between metaphor conditions and product types on attitudes toward the advertisements, and revealed the main effects of both metaphor conditions and product types.

Table 20.

Within subject effects-Attitude

	Sphericity Correction	Sum Squares	of df	Mean Square	F	p	η_p^2
Metaphor Conditions	None	10.907	[a] 2.000	[a] 5.454	[a] 6.948	[a] 0.001	[a] 0.023
	Greenhouse-Geisser	10.907	[a] 1.953	[a] 5.585	[a] 6.948	[a] 0.001	[a] 0.023
Residual	None	467.815	596.000	0.785			
	Greenhouse-Geisser	467.815	581.939	0.804			
Product Types	None	35.761	1.000	35.761	30.118	< .001	0.092
	Greenhouse-Geisser	35.761	1.000	35.761	30.118	< .001	0.092
Residual	None	353.834	298.000	1.187			
	Greenhouse-Geisser	353.834	298.000	1.187			
Metaphor Conditions ✻ Product Types	None	25.883	[a] 2.000	[a] 12.942	[a] 13.253	[a] < .001	[a] 0.043
	Greenhouse-Geisser	25.883	[a] 1.953	[a] 13.256	[a] 13.253	[a] < .001	[a] 0.043
Residual	None	581.997	596.000	0.977			
	Greenhouse-Geisser	581.997	581.880	1.000			

Note. Type III Sum of Squares

[a] Mauchly's test of sphericity indicates that the assumption of sphericity is violated ($p < .05$).

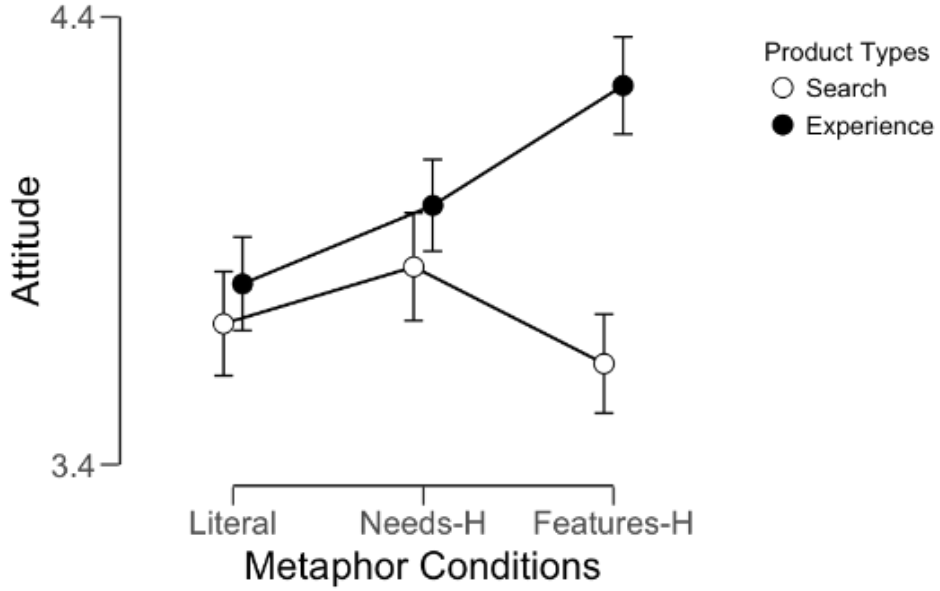

Figure 5. The descriptive plot-Attitude

The simple main effect analyses of metaphor conditions (Table 21) revealed a statistical significance at the level of search products, F (2, 596) = 3.55, p =.029, $\eta p2$ = .01, and the

level of experience product, F (2, 596) = 19.38, p <.001, $\eta p2$ = .06. For search products, needs-highlighting metaphors (M = 3.84, SD = 1.56) generated better attitudes than the literal condition (M = 3.72, SD = 1.59) and feature-highlighting metaphors (M = 3.63, SD = 1.52). For experience products, ads with feature-highlighting metaphors (M = 4.25, SD = 1.48) and needs-highlighting metaphors (M = 3.98, SD = 1.47) generated better attitudes than the literal condition (M = 3.80, SD = 1.48).

Table 21.

Simple main effects-Metaphor conditions-Attitude

Level of Product Types	**Sum of Squares**	**df**	**Mean Square**	**F**	**p**
Search	7.060	2	3.530	3.550	0.029
Experience	29.730	2	14.865	19.383	< .001

The simple main effect analyses of product types found a statistical significance at the level of feature-highlighting metaphors, F (1, 298) = 57.11, p <.001, $\eta p2$ = .16. Feature-highlighting metaphors for experience products (M = 4.25, SD = 1.48) generated better attitudes than those for search products (M = 3.63, SD = 1.52)(see Table 22).

Table 22.

Simple main effects-Product types-Attitude

Level of Metaphor Conditions	**Sum of Squares**	**df**	**Mean Square**	**F**	**p**
Literal	1.183	1	1.183	1.056	0.305
Needs-highlighting	2.814	1	2.814	2.784	0.096
Features-highlighting	57.648	1	57.648	57.111	< .001

3.1.5 Purchase Intention

Descriptive statistics of purchase intention and evaluation of normality are shown in Table 23.

Table 23.

Descriptive statistics for purchase intention

	PURLE	PURNS	PURNE	PURFE	PURFS	PURLS
Valid	299	299	299	299	299	299
Missing	0	0	0	0	0	0
Mean	3.765	3.856	3.892	4.038	3.641	3.801
Std. Deviation	1.536	1.529	1.521	1.492	1.527	1.587
Skewness	0.033	-0.002	-0.025	-0.082	0.196	0.108
Std. Error of Skewness	0.141	0.141	0.141	0.141	0.141	0.141
Kurtosis	-0.673	-0.762	-0.640	-0.537	-0.593	-0.765
Std. Error of Kurtosis	0.281	0.281	0.281	0.281	0.281	0.281
Minimum	1.000	1.000	1.000	1.000	1.000	1.000
Maximum	7.000	7.000	7.000	7.000	7.000	7.000

The results from two-way ANOVA (Table 24) showed a non-significant main effect of metaphor conditions on purchase intentions, F (1.94, 579.62) = 1.81, p = .17, $\eta p2$ = .006, a significant main effect of product types, F (1, 298) = 6.92, p = .009, $\eta p2$ = .02, and a significant interaction effect, F (1.99, 591.65) = 10.09, p < .001, $\eta p2$ = .03, suggesting that the influence of product types varies across metaphor conditions. These results provided evidence for H4(c) about the interaction effect between metaphor conditions and product types on purchase intention.

Table 24.

Within subjects effects-Purchase intention

	Sphericity Correction	Sum of Squares	df	Mean Square	F	p	η_p^2
Metaphor Conditions	None	2.513	[a] 2.000	[a] 1.256	[a] 1.809	[a] 0.165	[a] 0.006

Table 24.

Within subjects effects-Purchase intention

	Sphericity Correction	Sum of Squares	df	Mean Square	F	p	η_p^2
	Greenhouse-Geisser	2.513 [a]	1.945 [a]	1.292 [a]	1.809 [a]	0.166 [a]	0.006
Residual	None	413.893	596.000	0.694			
	Greenhouse-Geisser	413.893	579.622	0.714			
Product Types	None	7.814	1.000	7.814	6.917	0.009	0.023
	Greenhouse-Geisser	7.814	1.000	7.814	6.917	0.009	0.023
Residual	None	336.672	298.000	1.130			
	Greenhouse-Geisser	336.672	298.000	1.130			
Metaphor Conditions ✻ Product Types	None	16.143	2.000	8.072	10.085	< .001	0.033
	Greenhouse-Geisser	16.143	1.985	8.131	10.085	< .001	0.033
Residual	None	477.008	596.000	0.800			
	Greenhouse-Geisser	477.008	591.645	0.806			

Note. Type III Sum of Squares

[a] Mauchly's test of sphericity indicates that the assumption of sphericity is violated ($p < .05$).

The simple main effect analysis of product types (Table 25) showed a statistical significance at the level of feature-highlighting metaphors, F (1, 298) = 29.227, $p < .001$, $\eta p2 = .09$. Feature-highlighting metaphors ($M = 4.04$, $SD = 1.49$) for experience products generated higher purchase intention than those for search products ($M = 3.64$, $SD = 1.53$).

Table 25.

Simple main effects-Product types-Purchase intention

Level of Metaphor Conditions	Sum of Squares	df	Mean Square	F	p
Literal	0.202	1	0.202	0.195	0.659
Needs-H	0.190	1	0.190	0.214	0.644
Features-H	23.565	1	23.565	29.227	< .001

Level of Metaphor Conditions	Sum of Squares	df	Mean Square	F	p

While the main effect of metaphor conditions (Table 26) was insignificant, the simple main effect analysis of metaphor conditions revealed statistical significance at both the level of search products, F (2, 596) = 4.76, p = .009, $\eta p2$ = .02, and the level of experience products, F (2, 596) = 7.88, p <.001, $\eta p2$ = .03. For search products, needs-highlighting metaphors (M = 3.86, SD = 1.53) and the literal condition (M = 3.80, SD = 1.59) yielded higher purchase intention than feature-highlighting metaphors (M = 3.64, SD = 1.53). For experience products, feature-highlighting metaphors (M = 4.04, SD = 1.49) and needs-highlighting metaphors (M = 3.89, SD = 1.52) generated higher purchase intention than the literal condition (M = 3.77, SD = 1.54). The crossover trends (Figure 6) may lead to the non-significant main effect of metaphor conditions.

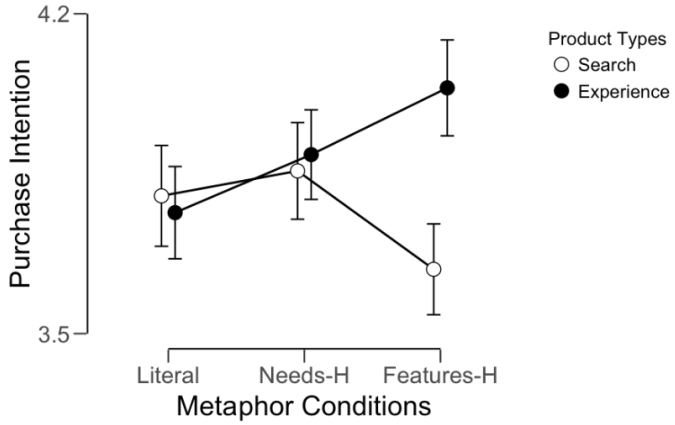

Figure 6. The descriptive plot-Purchase intention

3.2 Findings from interviews

Findings from interviews addressed the second research question about viewers' experience. To maintain the logical connections between quantitative and qualitative data, we organized the presentation of the interview findings according to the sequence of each dependent variable introduced in the Methods and Section3.1. When performing thematic analysis, we regarded each dependent variable as a theme. Details of interviewees' experience under each theme emerge from the data under our inductive analytic approach. We found that interviewees tended to share their thoughts while watching the advertisements and provided feedback on how well the ad content aligned or contradicted their personal experience and knowledge. Overall, the use of metaphors in the advertisements was found to enhance comprehension, activate mental images, elicit strong emotions, and mediate the persuasive power of advertisements.

3.2.1 Perceived complexity of multimodal appeals and ad content

The participants in this study provided feedback regarding the perceived complexity of multimodal appeals and ad content. They offered comments on the effectiveness of various approaches in incorporating multisensory elements. For instance, in Extract 1, one participant described her impressions of different modes. She found that spoken language had a stronger impact than written text. When viewing moving images, the participant found it difficult to notice the written text (see Turn 1). She further elaborated that the moving images of people grabbed most of her attention within a short time, leaving little opportunity to focus on the written text (Turn 5 to Turn 7). These observations on appeals could be attributed to the limited cognitive resources available for processing multiple sensory elements simultaneously.

Extract 1 (*Turns of the interviewer are in Italics*)

T1: 它如果没有说的话，我根本就不太能记得住。

T2: 就是你觉得它如果讲出来，你会有印象。

T3: 对

T4: 它没有讲你就觉得……

T5: 看画面的话，人的话，它很快，我可能就注意到，看画面。这个字，我就没太注意看。

T6: 嗯，就没太注意看。

T7: 对，而且它好几行(字)，它这个画面又是1秒钟，很快就过去了，根本就没注意到字。

T1: If it is not in the spoken language, I would not remember it at all.
T2: So, if it is spoken language, you will have an impression.
T3: Yes.
T4: If it is not spoken, you feel like...
T5: If looking at the images, when there are people involved, it's very fast. I might only notice watching images. I didn't pay much attention to the written text.
T6: Hmm, so you didn't notice (the written text).
T7: Yes. And there are several lines. The images passed quickly in 1 second. I didn't notice the written text at all.

When commenting on the content of advertisements, participants often compared the comprehensibility of messages and expressed more positive attitudes toward advertisements that were easier to understand. Extract 2 exemplifies how using metaphors reduced the difficulty associated with understanding technical terms. The participant attributed positive attitudes to a better understanding of technical terms related to therapy methods when they were presented using metaphors. Compared with the literal condition, metaphors yielded an improved comprehension of the counseling service.

Extract 2:

T1: 跟另一个广告（*literal*）比起来，你对它的态度为什么会好一些?

T2: 这个（太阳）用到了比喻。就是抑郁症患者的阳光太阳，照亮你的世界，温暖这些字眼。另一个疗法的词，我不懂。这种术语还是有药理的感觉。但是阳光啊，太阳啊，比较好理解，也不会觉得自己是病人，就更轻松一点，没有一种我在给你看病，这种感觉。

T1: Compared with another ad (literal condition), why do you have a better attitude towards this ad?
T2: This ad uses metaphors. The sunlight and sun of depressed patients. Words such as illuminating your world and warmth. Words about therapy used in another ad, I don't understand. This kind of technical terms gives people a pharmacological feeling. But sunlight and sun are easier to understand. I won't feel I'm a patient and will feel more relaxed. It won't feel like being treated by doctors.

Nevertheless, metaphors did not always ease comprehension. Extract 3 presented a case where a participant expressed confusion due to the use of metaphors. Although the mappings of a feature-highlighting metaphor (*LEXIN IS A FRIEND*) were introduced through supporting metaphors (*SEROTONIN IMPROVEMENT IS ENCOURAGEMENT; ENHANCING SIGNALS BETWEEN CELLS IS CONSOLATION*), the viewer had difficulty understanding such mappings. The viewer appeared to sense that targets and sources are 'two things', but she could not identify the links between them, i.e., the mapping features. According to previous research on multimodal metaphor and Relevance Theory (Forceville, 2014, 2016, Wilson & Sperber, 2002), such difficulties with comprehending a metaphor occurred when viewers could not find relevance in their personal experience and knowledge. As a result, metaphors may increase perceived complexity when viewers cannot make sense of them.

Extract 3:

T1: 对于"药是你的朋友"看的时候，会想什么

T2: 我在想这个鼓励安慰和血清素怎么结合起来。因为它这个画面上的字和读的东西有一种gap的感觉。就是似乎在说两件事。就是给你鼓励和安慰，和图要结合起来吧。我不太懂，怎么连接起来。至少要给一些解释吧，就是鼓励安慰跟提高血清素是怎么连接。

T1: What were you thinking when you watched "Medicine is your friend"?

T2: I was thinking about how the encouragement and serotonin combined. Because there is a gap between written text and spoken language. Seems that there are two things. Like how to connect giving you encouragement and the images. I don't quite understand how to connect them. At least some explanations are needed, that is, how encouragement and comfort are linked to increasing serotonin.

3.2.2 Cognitive elaboration toward metaphorical advertisements

The survey results showed that metaphorical advertisements elicited greater cognitive elaboration than literal advertisements. The interviews further suggested that this elaboration

could be classified into three categories: i) activation of mental images related to sources, ii) elicitation of embodied simulations, and iii) evaluation of messages.

Several participants reported that the metaphors triggered vivid mental images of the sources. For instance, in Extract 4, a participant described how the metaphors elicited imagined images and actions in his mind (Turn 2 in Extract 4). The participant described a scenario in his mind that was different from the visuals presented. Specifically, the participant envisioned Godzilla as the monster, causing destruction and chaos in people's lives. This scenario was an extension of the video's scene based on the viewer's personal experience.

Extract 4:

T1: 为什么挺好呢

T2: 就是首先，从文字的角度来说，非常非常的形象，生动。
就是抑郁这头怪兽，这头怪，是不是，你脑袋里立马就能想到一个画面，就是什么，比如我想到的就是哥斯拉在破坏城市，那种感觉了。对，然后破坏了，它会使你的生活黯然无光。然后这是一个background,就为后面的做了一个铺垫吧，就先让人欲扬先抑。

T1: Why is it good?

T2: First of all, from the perspective of words, it is very, very vivid and vivid.
That is, the monster of depression, this monster, isn't it… you can immediately think of a picture in your mind…like... I think of (the scene) that Godzilla is destroying the city. That kind of feeling. Yes, and then (it) ruined the city. It makes your life dim. This is the background, preparing for the following content. That is, to make people feel negative before introducing positive outcomes.

Participants may also imagine performing bodily actions while comprehending metaphorical advertisements. In Extract 5, one participant appeared to imagine the feeling of entering the scene and undergoing depression and counseling. The participant explained her emotional fluctuations during her engagement with the metaphorical advertisement. She extended the provided metaphorical scene of a labyrinth to a scene of a cage that confined her. By connecting the scene of a cage with the product, the participant imagined the feeling of being physically trapped and eventually freeing herself from the cage (see Turn 3 and 4). These findings align with previous research on how verbal metaphors are interpreted as

769 embodied simulations (Gibbs, 2006).

770

771 Extract 5:

772

T1: 你给了五分，我想先问一下你，这个时候的你觉得你的情绪波动是一个什么样的波动？
T2: 情绪的波动是一开始，我觉得我困在牢笼里面走不出去，然后他突然就带我出去了，所以我就觉得有一点情绪的波动。
T3: 是说从消极到积极吗？也就是说你看的时候，其实你真的在想自己困在这个里面，你其实是已经自己代入到这个画面里面？
T4: 是的。
T5: 然后他带你走出去，你就有一些从消极到积极这样一个变化？
T6: 是的。
T7: ...你还记得你当时看的时候是什么样的感想或者思考？
T8: 我的感想就是思考真正得抑郁症的人真的是有这种感觉吗？他们真的会觉得自己困在牢笼里面，然后思考还有就是，这个药真的能带出我们，走出抑郁症吗？这是一种什么样的体验呢？
T9: 就说你在评价……
T10: 它的这个服务，真的能带着我们,认知疗法真的能带着我们走出迷宫吗？
T11: 好的。

T1: You gave five points. I want to ask you first. What kind of fluctuation of emotions do you think?
T2: The fluctuation of emotions.. at first, I felt that I was stuck in a cage and couldn't get out. Then it suddenly took me out. So I felt little changes of mood.
T3: Is it from negative to positive? You mean, when you watched it, you really imagined being trapped into it and you imagined that you were in the picture yourself?
T4: Yes.
T5: Then it took you out so that you have some emotional changes, like from negative to positive?
T6: Yes.
T7: ... do you remember what thoughts do you have during watching?
T8: My thoughts are that do depressed people feel in this way as well? Do they really feel like being trapped in a cage? And thoughts about can this medicine take us out of depression. What kind of experience it will be?
T9: You mean, you are evaluating ……
T10: Can this service take us to. Can cognitive behaviour therapy really take us out of the labyrinth?
T11: OK.

773

774 While watching advertisements, viewers also evaluated the messages based on their
775 personal experience, as demonstrated in Turn 8 and Turn 10 in Extract 5. This tendency to
776 approach messages in advertisements with skepticism is common among consumers (Calfee
777 & Ringold, 1988). Such skepticism may increase criticism towards metaphors in video
778 advertisements. Our findings showed that viewers tended to assess the messages based on
779 their existing knowledge or prior experiences. When the message clashed with their personal

experience, the provided mappings of metaphors were likely to be rejected. Extract 6 reports such a case, where the participant criticized the metaphor and gave low scores for comprehensibility (Turns 1 and 4). The metaphor was rejected as the participant refused to associate depression with a labyrinth. This was due to her positive childhood experience with labyrinths, which contradicts her perception of depression as negative.

Extract 6:

T1: 这第四个就是刚刚迷宫的这里，你给的,前两个是问广告容不容易懂。前两个你给它的打分是比其他要低很多的。

T2: 对。

T3: 这个是什么原因呢？就是说像迷宫啊，你觉得？

T4: 我不喜欢这个比喻啊！

T5: 你不喜欢它的原因是？

T6: 因为迷宫这个东西很，我认为它不是一个坏的事情。

T7: 什么不是坏的事情？

T8: 迷宫，但是抑郁症是一个坏的事情，迷宫很好玩。小的时候去文化宫的时候经常去走迷宫。

T9: 所以你就觉得这个广告有点看不懂？

T10:它会让人产生误解吧。

T11:误解是指就你觉得他本来应该不是坏的，但是放在这里，但抑郁症是坏的，他们俩绑在一块...你本身是喜欢迷宫的？

T12:对。

T1: The fourth one is about the labyrinth. The first two items ask the extent to which the ad is comprehensible. Scores here are much lower than the others.

T2: Yes.

T3: What is the reason for this? What do you think when it says like a labyrinth?

T4: I don't like this metaphor.

T5: Why?

T6: Because the labyrinth is very…I don't think it is a bad thing.

T7: What is not bad?

T8: Labyrinth, but depression is a bad thing. Labyrinth is fun. When I was young, I often walked through the labyrinth when I went to the Palace of Culture.

T9: So you think this advertisement is a bit confusing?

T10: It can be misleading.

T11: Misleading means that you think it (labyrinth) should not be a bad thing. But here, depression is a bad thing. Putting them together… You like the labyrinth.

T12: Right.

3.2.3 Affective elaboration reinforced by stimuli

The interviews revealed that metaphors highlighting specific features or needs could reinforce the emotional valence communicated by the stimuli. For instance, negative emotional appeals could be reinforced by needs-highlighting metaphors, eliciting negative emotional responses, such as loneliness, depression, and fear (see Extract 7). When viewers perceived resonance through such reinforcement, they felt a positive attitude toward the ad.

Extract 7

P: 对，我第二个就是喜欢开头。对，就感觉这段很抑郁，但是很符合抑郁的心情的那种感觉，就很孤僻，然后像迷宫也很贴切，感觉思绪很乱，走不出去的那种感觉。

P: Yes. I like the beginning of the second ad. Yes. This part seems to be very depressed, but it matches the feeling of being depressed. That is, very lonely. And very accurate to say '(depression) is like *labyrinth*'. Confusing thoughts and the feeling that I cannot walk out.

However, there were some viewers who had negative perceptions when metaphors were used to reinforce negative appeals in advertisements, which ultimately resulted in negative attitudes toward the ad. In Extract 8, a participant who had previously experienced depression shared his feelings upon seeing a monster in the ad. He interpreted the figure as death and strongly argued that such an outcome should not be shown to individuals struggling with depression (see Turn 3 and Turn 5). Likewise, other participants who had experienced depression (according to their self-reports in the interviews) expressed a desire to skip over the negative aspects of an ad. That is, reinforcing the negative appeals with inappropriate sources can potentially trigger identity threats (Henderson & Rank-Christman, 2016), leading to negative attitudes toward the ad.

Extract 8

T1：因为我第一眼看到这个骷髅，我第一反应就是，想到吸烟、禁毒、禁烟那些广告。然后觉得没什么意思。没有想到是抑郁症。然后它说是抑郁症。 说抑郁症我会想到我自己经历了，然后我看到这个会让我更加难受。我觉得。
T2：嗯。
T3：好像你在说我们得了病的人，这是我们最终的结局吗？就是这个（指向魔鬼画面）。
T4：就是你会有一种反对的, Argue 的感觉。
T5：对啊。你不能把这种坏的结果展现给我们。你给我们展现好的结果。
T6：嗯，明白。

T1: Because the first time I saw this skeleton, my first reaction was to think of advertisements about smoking, anti-drug, and no smoking. Then I think it's boring. I did not expect it to be depression. Then it said depression. Speaking of depression, I think of my own experience. And when I saw this, it makes me more uncomfortable. I think.
T2: Yeah.
T3: It sounds like you are saying… Is this the final outcome of us sick people? This one (pointing to the image of monster).
T4: Seems you are opposed to or argue with it.
T5: Yes! You can't show us this bad result. You shall show us good results.
T6: Yeah, I see.

The effect of reinforcing positive appeals worked differently for experience products and search products. Experience products benefited more from reinforcing positive appeals through feature-highlighting metaphors as viewers tended to report positive feelings, such as happiness, warmth, and brightness. In contrast, metaphorical advertisements for search products rarely elicited similar emotional changes. Extract 9 illustrates an explanation from a participant who claimed that the source of friends was less impressive than that of sunlight. This suggests a future research direction, that involves evaluating the effectiveness of different sources when reinforcing the same type of emotional appeals. While previous research on personification visual metaphors has shown increased brand liking and positive emotions (Delbaere et al., 2011), our experiment yielded inconsistent findings. This discrepancy may be attributed to the fact that the stimuli used in their study were exclusively search products (e.g., moisturizer, a snack bar, a snack mix, and bleach) (Delbaere et al., 2011). Therefore, there is limited information available regarding the effects of personification metaphors across different product types.

Extract 9

T1: 我有一个问题，就比如说刚刚那个朋友广告跟他们其实前面都没有对抑郁症做出太多的渲染，他们其实是一样的，前面的内容是一模一样的，为什么朋友就没有什么太大的情感波动，但是这个你就觉得？

T2: 可能是因为图像的问题，我对于朋友的image，因为是不知道为什么就感觉印象不是特别的深刻，但是看到阳光充满心灵，就感觉我能想象出那幅画面一样。

T1: I have a question. For example, the ad about friends didn't reinforce much about the negative appeals. They are same at this point. The first part is exactly the same. Why the ad about friends didn't elicit much affective elaboration, but this one does?

T2: It maybe because of the images. I don't know why I don't have much impression about images of friends, but when I see the sunshine fills in one's mind, I think I could imagine this picture.

3.2.4 Attitudes toward the ad and purchase intention

The interviews also suggested that for experience products, empathy generated by needs-highlighting metaphors and reinforced positive emotions generated by feature-highlighting metaphors contributed to favorable attitudes toward the ad and increased purchase intention. Nevertheless, for search products, only needs-highlighting metaphors contributed to persuasion.

One criterion to evaluate the credibility of an ad was the degree of consistency between the metaphor and individual experiences. Extract 10 provides such an example, where a participant emphasized that the primary reason for trusting the product was that the content of the metaphor aligned with his personal experience and knowledge (see Turn 2). This finding is consistent with the theoretical claim that the relevance of communication is at the individual level (Forceville, 2020). If metaphors in the ad convey messages contrasted with a viewer's individual experience, then the viewer may be less likely to accept the ad.

Extract 10

T1：你为什么会认可这个药？

T2：就刚刚说了嘛，它先做比喻，它讲的那种内容，跟我的生活经验的理解比较契合。另外一个是它讲的时候，它的这个药的主要的机理是什么，就是说要提高血清素强化什么呀。所以我认为这样会让我觉得更可信。

T1: Why do you trust this medicine?

T2: Like what I said just now, it showed a metaphor first, and the content of metaphor matches my understanding of life experience. Another reason is that it introduced the mechanism underlying medicine, like increasing serotonin. So I think these will make me feel it is trustworthy.

4. Discussion and conclusion

The results from this research revealed that: (1) depression metaphors mediated the perceived complexity of video advertisements; (2) depression metaphors evoked a range of emotions in viewers; and (3) depression metaphors enhanced the persuasion of advertisements by establishing a strong connection to the viewer's personal experience.

The findings on how metaphors mediate perceived complexity differ from that of previous studies on print advertisements, as metaphors in those contexts typically increased perceived complexity in comparison with literal advertisements (Chang et al., 2018; Chang & Yen, 2013; Phillips & McQuarrie, 2004, 2009). The present study found that metaphors in video ads were easy to understand and can assist in comprehension, especially when for experience products. One reason for the contrast may be the dynamic nature of video ads, in which anchoring information to explain the intention is normally provided (Enschot et al., 2010; Enschot & Hoeken, 2015), whereas it is rare for print ads to elaborate the design of metaphors due to their static nature. Furthermore, the use of personal experience in understanding metaphors with abstract concepts may also contribute to the decreased perceived complexity. Previous studies found that participants tend to exploit their personal experience to understand metaphors with abstract concepts and derive more similarities from them than from metaphors with concrete targets (Wiemer-Hastings & Xu, 2005; Xu, 2010).

The present study also found that metaphors in video advertisements elicited a variety of

emotional responses, including fear, depression, and happiness. This differs from studies on print advertisements, which primarily focused on the elicitation of happiness through the resolution of metaphorical puzzles (Jeong, 2008; Kim et al., 2012). Thus, the mechanisms underlying emotional responses to metaphors in video advertisements may be different from those in print advertisements.

In this study, reinforcing negative appeals generally yielded better results than using literal advertisements. However, it is important to exercise caution when selecting the visuals of these advertisements, taking into account the target audience. Our interviews suggest that viewers with prior experience of depression have different preferences for advertisements compared with those without such experience. Viewers who had previously experienced depression tended to respond positively to the reinforcement of positive appeals, whereas viewers who had only heard of depression tended to respond positively to the reinforcement of negative appeals. Given that the target audience for video advertisements include both the general public and individuals who suffer from depression, it is crucial for advertising producers and practitioners to carefully select metaphorical sources. For instance, as highlighted by our interviews, viewers with experience of depression reported negative perceptions toward advertisements that portrayed depression as a monster. Malkomsen et al. (2021) also pointed out that using a monster, i.e., an opponent, to describe improvement from depression may generate negative influences on therapeutic change among depressed patients. Therefore, when representing minor groups in advertising, designers should make efforts to safeguard the audience from experiencing threats to their identity (Kipnis et al., 2021).

The role of personal experience was found to be important in comprehending and evaluating metaphors and the persuasiveness of advertisements. When the metaphors aligned with viewers' personal experience and existing knowledge, the messages were perceived as

trustworthy. Our studies found that viewers searched for relevant messages to their cognitive environment when watching video advertisements, which is consistent with Relevance Theory in mass communication (Forceville, 2020). Messages that challenged viewers' assumptions may be rejected in the context of advertisements, possibly due to the skepticism viewers hold toward the genre of advertising.

Considering existing studies on the use of metaphors in advertising different types of products, the results from our experiment showed that frequent patterns observed in real-world advertisements may not be deemed effective by viewers. While discourse analytic studies (Pan & Tay, accepted) found that metaphors were often used in advertisements for search products by involving the product itself as the target, this approach resulted in the lowest scores for attitudes and purchase intention in our experiment. Experience products were found to be frequently associated with metaphors highlighting consumer needs rather than directly advertising the product (Pan & Tay, accepted). However, our experiment found that the most effective approach for advertising experience products was to use metaphors that directly highlighted the attributes of the products. Therefore, practitioners could consider using more needs-highlighting metaphors for search products and more feature-highlighting metaphors for experience products.

This study bears both theoretical and practical implications. First, the effectiveness of metaphors in video advertisements was examined and demonstrated through a rigorous within-subjects experimental design. Second, it provided empirical evidence on the public's response to metaphorical video advertisements pertaining to depression. This finding has the potential to contribute toward fostering a more diverse and inclusive society, provided that careful attention is given to selecting appropriate metaphors for the products and target audiences. Nonetheless, it is important to acknowledge the limitations of this study. Findings from this study can hardly be generalized to other linguistic and cultural contexts, as these

factors could influence the usage and interpretations of metaphors. Additionally, while a few participants reported prior history of depression, it is crucial to note that these perceptions may not be valid or directly comparable to clinically diagnosed cases undergoing treatment. Addressing this gap would require joint efforts from psychotherapists, linguists, and advertisement designers, with comprehensive collaborative and ethical considerations (Tay, 2022).

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[i] http://1118.cctv.com/2018/04/12/VIDEctDB9PvctBlooIdkbPGh180412.shtml

[ii] https://explorable.com/counterbalanced-measures-design#:~:text=For%20experiments%20with%20an%20even%20number%20of%20conditions%2C,at%20an%20example%20for%20a%20six%20condition%20experiment

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