

# Research on Social Media Advertising Persuasion Based on the Elaboration Likelihood Model

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**Abstract.** Based on the elaboration likelihood model, this research investigates the influence of central cues (advertising informativeness and advertising persuasiveness) and peripheral cues (social climate) on consumers' advertising involvement and attitude towards advertising in social media. We collected 309 valid questionnaires as empirical data, and this study examined the research hypotheses with SmartPLS. The results show that: (1) Advertising persuasiveness has a significant impact on consumers' advertising involvement, while advertising informativeness has no significant influence on advertising involvement. (2) Social climate has a significant positive impact on consumers' involvement in advertising. (3) Compared with the central cues, the peripheral cue has a stronger effect on consumers' advertising involvement. (4) Advertising persuasiveness and social climate indirectly influence consumers' attitudes toward advertising through the mediating role of advertising involvement.

## 1 Introduction

In recent years, social media such as Weibo, WeChat, Facebook, and Twitter have flourished. According to the Digital 2022: A Global Overview Report, there were 4.62 billion social media users worldwide in January 2022, a number equivalent to 58.4% of the world's population. Marketers can increase the familiarity of products or services through the information of social media advertising, and use the social attributes of the platform to trigger users to participate in interactions to strengthen this familiarity. However, with the increasing customer acquisition cost of social media and the deepening diversification and fragmentation of communication channels, marketers not only have to face the choice of diversified social platforms and advertising but also have to bear the increasingly high trial and error and management costs. Therefore, researchers are required to determine which advertising information and publishing environment will increase consumers' favorable advertising attitudes.

Marketers deliver value and attract attention through social media in different ways. Researchers have found that the informational nature of the content is a factor affecting consumers' perception of value because consumers hope to obtain exclusive and timely product information when browsing advertising content [1]. Meanwhile, persuasion plays the role of information recommendation. Individuals are more likely to adopt new technologies if external information is persuasive. Although the social context has previously been mostly applied in the context of a community or group in social media [2–5], few studies have included the social climate of social media in the study of social media

advertising. social media provides an online place for people to gather together, which is equivalent to a large interactive community. Social media users exchange personal experiences, provide feedback, share information, and enjoy leisure time with each other, thus creating a social climate that influences customer's attitude to information on social media [6]. Social media has its own unique user-to-user ecosystem, and differences in this environment or context influence how consumers perceive and accept advertisements [7].

Therefore, firstly, based on the elaboration likelihood model, this study sorts out two cues of advertising persuasion in the context of social media. Then, we construct the persuasion model of social media advertising. Finally, we explore the persuasion mechanism of the central cues and the peripheral cues on advertising involvement and consumers' advertising attitude. This study aims to answer the following research questions:

Q1: What information and climate cues in social media advertisements affect advertising involvement in and attitudes toward advertisements, and how?

Q2: Do central cues (informativeness and persuasiveness) and peripheral cues (social climate) have different effects on advertising involvement and attitudes toward advertising?

## 2 Prior work and hypotheses

### 2.1 The Elaboration Likelihood Model

The elaboration likelihood model was proposed by Petty and Cacioppo, which is a very useful, logically

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reasonable, and sound model for elaborating information process and influencing consumer attitudes in the context of social media [8]. According to this theoretical model, consumers' cognition and attitude towards things mainly go through two routes: the central route and the peripheral route[9]. In the context of social media, individuals who process messages through a central path are more likely to tend to focus on product-related presentations, and individuals will tend to spend more time reading and processing the information arguments presented. Individuals who process messages through peripheral paths will tend to rely on simple cues and secondary information (e.g., emotional states and social roles) to form their attitudinal perceptions[10]. Previous research has suggested that the stability and intensity of changes in consumer perceptions triggered by the two routes differ. But that central and peripheral cues of persuasion should be examined simultaneously in a single model, so this study examines the central and peripheral cues that influence attitudes to advertising in the context of social media.

## 2.2 Peripheral Cues

Users interact and exchange information on social media, thus generating a desire to belong to the group and forming a social climate [2, 3]. In the interaction on social media, users' perceived social trust and social support are key aspects of a group [3].

Social media are rooted in interpersonal relationships, and individuals who feel a high level of social trust in a group will also respond on social media. It is embodied in two aspects: on the one hand, the social trust perceived by consumers on social media will be transferred to the information on social media [11]; On the other hand, as social animals, consumers tend to use heuristic methods to avoid extensive information processing, and users' perceived trust in social media has gained greater relevance in virtual environments [12]. Interactions between consumers provide valuable support for others seeking information and advice on the web. And this supportive climate attracts more people to social media interactions, which in turn influences consumers' behavior [5]. Once consumers are supported in their social media, users tend to have a higher opinion of the value of advertising [13]. Social support is an added value of social media. And this social climate encourages consumers to focus more actively on the information posted by others[5]. Overall, perceptual stimuli in social media affect people's emotional awareness in online environments. In other words, the perceived social climate affects attention at the individual level. Therefore, we assume that:

H1. The social climate is positively influencing advertising involvement

## 2.3 Central Cues

The primary purpose of consumers viewing ads is to obtain product information; therefore, the informational nature of ads is critical to the effectiveness of social

media advertising. The informativeness of advertisements mainly reflects in providing valuable news to users or satisfying customers. In particular, when ad content provides information that includes customer needs, they are less likely to miss product information and thus invest more effort in it [1]. The rapid growth of social media has resulted in consumers being confronted with an overload of information that is often more than they can process, so when a consumer believes that social media ads are not a good channel to obtain product information, he isn't willing to pay attention to the ad content. However, when consumers believe that advertising messages are credible and trustworthy, they will invest more emotion and energy in them [1]. In particular, when the content is persuasive information, such as content with good reasons based on specific facts about the product or service, it is beneficial to increase their association [14]. When social media ad content is informative and persuasive, consumers are more rational and pay more attention to the professionalism and trust of the product, which leads to higher ad involvement. Therefore, we hypothesize that:

H2a The informativeness of social media ad positively affects ad involvement

H2b The persuasiveness of social media ad positively influences ad involvement

## 2.4 Advertising Involvement and Advertising Attitude

According to the elaboration likelihood model, persuasion leads to attitude change through two routes (central route and peripheral route), and involvement has been an important motivation for an attitude change in the elaboration likelihood model literature [15-16]. Advertising involvement refers to the degree of concern audiences give to advertising information and advertising situation or their psychological state when they come into contact with advertising[15]. Consumers choose social media because they can get information value from it and need social interaction. The argument quality of advertisements and social media climate meet users' needs. In other words, the motivation to process advertising information is greatly affected by the degree of involvement, thus affecting the effectiveness of advertising [17]. Specifically, the information value of advertising content and the social climate of social media arouse individuals' awakening, attention, and information processing [15], and consumers' interest in advertising is a direct influencing factor of advertising attitude after advertising exposure. This suggests that the process of persuasion is not necessarily achieved directly through stimulation. Spielmann and Richard found that consumers first conduct cognition before forming brand attitudes and establishing the overall relevance of advertising, that is, brand attitudes are first formed by the overall advertising. Therefore, we assume that:

H3 Advertising involvement positively affects attitudes towards advertising.

H4a advertising informativeness indirectly affects consumers' attitudes toward advertising through the mediating role of advertising involvement.

H4b Advertising persuasiveness indirectly affects consumers' attitudes toward advertising through the mediating role involved in advertising.

H4c The social climate of social media indirectly affects consumers' attitudes toward advertising through the mediating role of advertising involvement.

In summary, a research model is proposed see Figure 1.

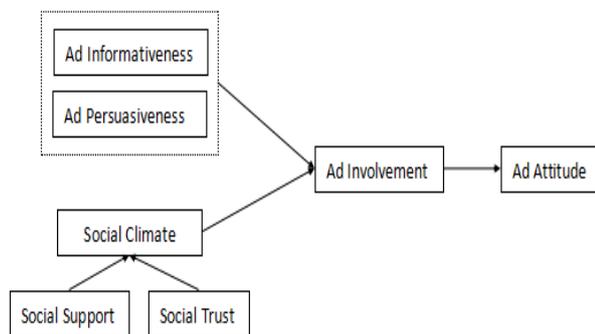


Fig. 1. The research model Methodology.

### 3 Methodology

#### 3.1 Research Design

The research focuses on China, which has more than 1 billion social media users. As the second largest social media in China, Weibo is an appropriate platform for research. In addition, the advertising stimulation in this study selects computer products, because the post-90s and post-00s account for nearly 80% of Weibo users, and they are an important target market for computer products. Young people have a variety of subjective computer experiences and may have different subjective attitudes toward computer advertising. To avoid brand familiarity, product names and company logos in this study were customized.

#### 3.2 Data Collection

This study collected questionnaires through the online platform named “wjx.cn”. To eliminate the influence of some unrelated factors, for example, less use of social media and therefore less understanding of social interactions. We set up a screening question (Have you been interacting with others on Twitter recently? Such as forwarding, commenting, like others' microblogs.) The answer was "yes or no", and as a screening question, when the subject answered "no", the questionnaire was considered invalid. A total of 357 questionnaires were received, and 309 valid questionnaires were recovered after removing invalid questionnaires. Among all respondents, 49.2% were male and 50.8% were female;

Most of them were between 19 and 30 years old, accounting for 86.7%; 78.6% of the users have a bachelor's degree or above, 57.0% are students, and 74.4% of the users use Weibo almost every day or several times a week. The research objects are consistent with the portraits of Weibo users.

### 4 Data analysis

SmartPLS was used to evaluate the data in this study. There are mainly the following reasons: Firstly, PLS-SEM does not require samples to follow a strictly normal distribution, and it is suitable for dealing with small sample sizes. Secondly, this method can deal with second-order formative structures. Finally, partial least squares structural equation modeling can be used to identify theoretical developments and assess all causal relationships [18].

#### 4.1 Common Method bias

The questionnaire in this study was self-reported, and common method bias may persist. Therefore, at the beginning of the questionnaire, we asked respondents to be honest and fill in without the pressure of being right or wrong. Secondly, we performed Harman's single-factor to test the common method deviation by exploratory factor analysis. The results showed that the variance explanation rate of the first variable was 46.606% (less than 50%), indicating that CMB was not serious.

#### 4.2 Content and construct validity

Based on the characteristics of social media advertising, this study appropriately modified the existing measurement items to make them conform to the research scenario of social media advertising. Therefore, content validity for these con-structs was ascertained. All measurement items were measured using a seven-point Likert scale determined by strongly disagree (1) and strongly agree (7).

In this study, the measurement model was evaluated by reliability, convergence, and discriminant validity. Cronbach's  $\alpha$  coefficient and composite reliability (CR) were used to test the reliability of the scale, and the average extracted variance of each variable (AVE) was used to measure the convergent validity of the scale. The calculated results are shown in Table 1. As can be seen from Table 1, Cronbach's  $\alpha$  coefficient of all variables is greater than 0.7 and the CR value is greater than 0.8, indicating that the scale has high internal consistency. The AVE value of the average extracted variance of each variable was greater than 0.5. In addition, the standardized factor loadings for the measurement of the target structure ranged from 0.703 to 0.891, indicating that the scale had good convergent validity.

**Table 1.** Reliability and validity

Latent constructs	Factor loading	Cronbach's $\alpha$	CR	AVE
Ad Informativeness		0.829	0.885	0.658
ADI1	0.799			
ADI2	0.771			
ADI3	0.860			
ADI4	0.812			
Ad Persuasiveness		0.909	0.932	0.734
ADP1	0.885			
ADP2	0.870			
ADP3	0.840			
ADP4	0.813			
ADP5	0.874			
Social support		0.927	0.943	0.734
SOCS1	0.831			
SOCS2	0.864			
SOCS3	0.878			
SOCS4	0.879			
SOCS5	0.834			
SOCS6	0.852			
Social Trust		0.890	0.924	0.752
SOCT1	0.845			
SOCT2	0.883			
SOCT3	0.878			
SOCT4	0.864			
Ad Involvement		0.964	0.969	0.758
AI1	0.882			
AI2	0.856			
AI3	0.844			
AI4	0.888			
AI5	0.882			
AI6	0.871			
AI7	0.891			
AI8	0.843			
AI9	0.870			
AI10	0.876			
Ad Attitude		0.872	0.904	0.612
ADT1	0.717			
ADT2	0.703			
ADT3	0.776			
ADT4	0.860			
ADT5	0.773			
ADT6	0.850			

The Fornell-Larcker's Method and heterogeneous to elemental ratio (HTMT) were used to evaluate discriminant validity, and the calculated results were shown in Table 2 and Table 3. Table 2 and Table 3 show that the square root of the average extracted variance of all variables is greater than the correlation coefficient between this variable and other variables, indicating that the scale has good discriminant validity. The HTMT ratio value is less than 0.85, which indicates that the measured value of each variable does not reflect the

situation of other variables, so there are no problems of reliability and validity in this study.

**Table 2.** Fornell-Larcker's criterion

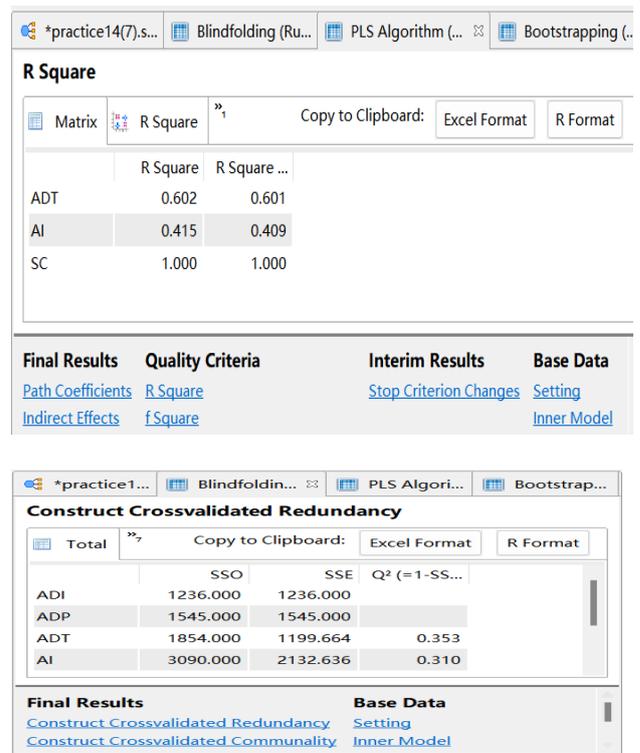
	ADI	ADP	ADT	AI	SOCS	SOCT
ADI	0.811					
ADP	0.704	0.857				
ADT	0.513	0.663	0.782			
AI	0.359	0.446	0.766	0.87		

SOCS	0.457	0.469	0.6	0.52	0.857
SOCT	0.41	0.523	0.684	0.665	0.679

**Table 3.** The Heterotrait-monotrait ratio

	ADI	ADP	ADT	AI	SOCS	SOCT
ADI	0.811					
ADP	0.704	0.857				
ADT	0.513	0.663	0.782			
AI	0.359	0.446	0.766	0.87		
SOCS	0.457	0.469	0.6	0.52	0.857	
SOCT	0.41	0.523	0.684	0.665	0.679	0.867

Social climate is a second-order formative variable in the research model, and traditional methods for assessing the reliability and validity of constructs are not suitable for formative variables. According to the formative variables assessment scheme, when the weight of the first-order variables of social climate is greater than the criterion of 0.2, it demonstrates a sufficient level of validity [18]. Bootstrapping algorithm is used to estimate the weights of first-order reflectance variables. The PLS analysis shows that the weights of social trust and social support are 0.790 ( $P < 0.001$ ) and 0.278 ( $P < 0.05$ ), respectively. In addition, variance inflation factor is used to examine multicollinearity, which refers to the existence of a correlation between explanatory variables in a linear regression model. The PLS analysis shows that social trust and social support are 1.853 and 1.853, which are lower than the standard of 3.3 [16]. Two first-order constructs for social climate confirm its validity. Based on the above analysis, the structure analysis could be continued. The interface of SmartPLS operation result is shown in Figure 2.

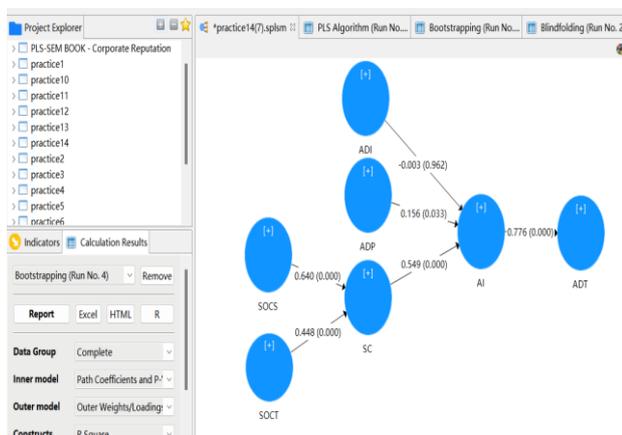


**Fig. 2.** SmartPLS interface

### 4.3 Test of Structural Model

The structural model was analyzed by explanatory power ( $R^2$ ), predictive correlation ( $Q^2$ ), and path coefficient values ( $\beta$ ). Social media advertising informativeness had no significant effect on user advertising involvement ( $\beta = -0.003$ ,  $P = 0.962$ ); Advertising persuasiveness had a significant effect on consumers' advertising involvement ( $\beta = 0.156$ ,  $P = 0.037$ ); Social climate has a significant influence on consumers' involvement in advertising ( $\beta = 0.549$ ,  $P = 0.000$ ); Advertising involvement has a significant influence on users' attitudes toward advertising ( $\beta = 0.776$ ,  $P = 0.000$ ).

To further analyze the mediating effect, the mediating effect of advertising involvement is examined through multiple steps. Firstly, this study evaluated the indirect effects of advertising persuasiveness and social climate and found that the indirect effects of advertising persuasiveness ( $\beta = 0.121$ ,  $t = 2.057$ ) and social climate ( $\beta = 0.426$ ,  $t = 9.286$ ) were significant. In the second step, without excluding the mediating factors, the direct effects of advertising persuasiveness and social climate were evaluated, and it was found that advertising persuasiveness ( $\beta = 0.333$ ,  $t = 6.481$ ) and social climate ( $\beta = 0.202$ ,  $t = 3.514$ ) had significant positive direct effects, which indicated that advertising involvement is part of the mediating effect. This indicates that the research hypotheses H1, H2b, H3, H4b, and H4c were supported except for H2a and H4a. In addition, the variance explanation rates  $R^2$  of advertising involvement and advertising user attitudes in the model are 40.9% and 60.1%, respectively, indicating that exogenous variables have high explanatory power to endogenous variables [18]. The predictive correlation of the research model is



evaluated by  $Q^2$ . In this model, the  $Q^2$  of advertising involvement and user's attitude towards advertising are 0.310 and 0.353 respectively, both greater than 0, which represents a good predictive correlation [18].

## 5 Conclusions

Based on the elaboration likelihood model, this study analyzes the influence of consumers' attitudes toward platform advertising from the central cues (social media advertising informativeness and persuasiveness) and peripheral cues (social climate) and obtains the following research conclusions: (1) Advertising persuasiveness has a significant impact on advertising involvement, which indicates that the persuasion of advertising content can arouse consumers' associations more [12]. But advertisements provide timely, relevant, accurate, and helpful information that cannot let the consumer immerse themselves in advertising. The possible reason is the phenomenon of information overload makes it impossible for consumers to digest so much information. (2) Social climate has a significant impact on advertising involvement. Studies have found that the social climate of WeChat groups positively influences information value [2]. In this study, social climate is extended to social media, a large online community, which verifies that the social climate of the platform affects users' information processing. (3) This study identified a strong relationship between advertising involvement and users' attitudes toward advertising. (4) Compared with the central cue, the peripheral cue has a greater impact on consumer advertising involvement. This study theoretically verified the applicability of ELM in the context of social media, and incorporated social media features (social climate) into the discussion of peripheral cues, enriching the application of ELM in the field of social media advertising. In terms of practice, marketers should try their best to improve the quality of social media advertisements, rather than simply stacking information. They should consider the social climate of different social media platforms, to improve the advertising effect through both the central route and the peripheral route.

This study also has some limitations: First, it does not consider the possible differences of different between other social media platforms. Second, we only consider two dimensions of advertising content characteristics, namely, informational and persuasive. Third, only empirical evidence was collected, while other forms of data, namely consumer clicks and comments, may also indicate consumer perceptions of advertising. Incorporating multiple model data sources may help to gain more insights into this emerging stream of literature.

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