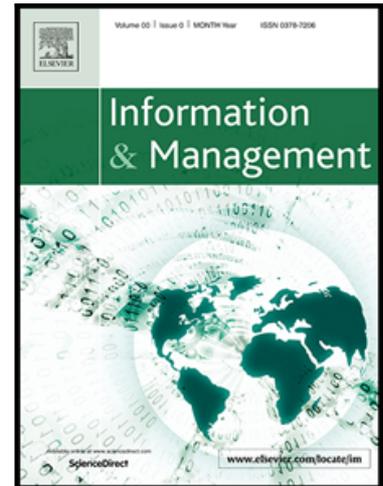


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The effect of different social media marketing channels and events on movie box office: An elaboration likelihood model perspective

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## The effect of different social media marketing channels and events on movie box office: an elaboration likelihood model perspective

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### Abstract

Social media has become an important marketing media to attract and retain consumers. This article focuses on the movie industry and aims to investigate how different channels and events in social media marketing achieve box office success through different consumers' responses. In reference to elaboration likelihood model (ELM), we propose our research model and test hypotheses using the data of 304 movies with the information of box office, attributes, and associated social media posts. The results show that: (1) official microblog activity increases the purchase intent through changing audience's attitude while third-party mention increases purchase intent through catching audience's attention and promoting positive attitude, and there is an interaction effect between official microblog and third-party media; (2) social media marketing events related to contents introduction promote purchase intent through central route while those related to surrounding information promote purchase intent through peripheral route; and (3) movie attributes interact with marketing intensity in affecting purchase intent. Under the same marketing intensity, the marketing effect of domestic sequel movies released on popular holidays is better. Our findings provide both theoretical and practical implications.

Keywords: social media marketing; elaboration likelihood model; movie box office; consumers' responses

### 1. Introduction

In the past several years, the development of information technology has changed the characteristics of websites towards more interactive, participatory, and user-centric social media. Social media is defined as "forms of electronic communication through which users create online communities to share information, ideas, personal messages, and other content" [1]. Social media includes applications, such as social networking sites, blogs, content communities, forums/bulletin boards, and other interactive applications, which allow users to create and share information [2-4]. These newer versions of social media (Web 2.0 technologies) have become extremely popular on the Internet and are predicted to be future marketing media [5].

The explosive growth of social media channels has transformed the way many companies interact with consumers how businesses attract and retain consumers. A study showed that social media channels were commonly used by U.S. businesses to connect with their customers or prospects than Google [6]. In an annual study [7, 8], Facebook and Twitter were the top two social media tools used by marketers for the past 2 years. Such promotional strategies are particularly important in the entertainment industry (e.g., movies) due to the experiential nature of these products, which requires value co-creation by the producer and the consumers [9]. In movie industry, many researches have been conducted to investigate the relationship between a movie's social media activities and the movie's future economic performance. For example, Oh, Roumani [10] examined the effects of social media from the perspective of consumer engagement behavior (CEB), and found that CEB on Facebook and YouTube positively correlated with box-office gross revenue. Nanda and Pattnaik [11] examined how movie studios developed an integrated social media strategy to achieve box office success. The findings indicated that the social media promotional strategy was developing appropriate content to match the unique characteristics of the social media platforms. While Facebook was used primarily to connect audiences through organizing fun events, Twitter was used to retweet the positive word-of-mouth generated from the audiences. Song et al. [12] focused on the relationship between movie box office revenue and user-generated content (UGC) as well as marketer-generated content (MGC) on a microblogging platform and UGC on a third-party platform. It was found that microblogging UGC (MUGC) was a significant predictor of box office revenue and had stronger predictive power than UGC on Douban! Movies (DUGC).

While preliminary research has been conducted on the success of marketing activities in social media, little is known about the mechanism behind. Few studies have opened the black box of the intermediate process, revealing the internal mechanism of action from social media marketing activities to box office performance. This neglect of consumer response may contribute to consequences that hinder consumer purchases. Looking at the existing marketing research models, the mediating role of consumer response is usually the focus of research. For example, Lantos and Craton [13] proposed the effect model of advertising music on consumers, which showed that advertising music affected consumers' purchase intention by acting on consumers' cognitive and emotional responses; Dens and De Pelsmacker [14] believed that brand extension in sub-brands can elicit more positive consumer responses, which in turn can lead to higher purchase intentions. Thus, it can be assumed that social media marketing activities act on consumers first, then attract the attention of consumers or change the attitudes towards the movie, and finally promote consumer purchase behavior. The openness and interaction of the social media platform provide the conditions to uncover the black box of the influence mechanism of marketing activities, which needs further exploration.

In addition, the consumer responses caused by social media marketing cannot be generalized. Social media marketing has multiple marketing channels and events [15]. For example, in addition to brand-owned media, social media accounts opened by

media agencies will also release product-related information. Compared with the brand-owned media, this article defines the official account opened by the media organization on the social media platform as third-party media. Previous studies have shown that both brand-owned media and third-party media can promote product sales [16], but the mechanism of action of the two is different. Brand-owned media focuses on publishing information about product introductions [17]. Its nature is similar to that of brand-built advertising windows and the starting point is to recommend products. While third-party media focuses on publishing product evaluation information [18]. Its nature is similar to third-party inspection, and the starting point is to review products [19]. As for the marketing events, some studies have shown that different types of events that social media account post would have different performances in facilitating purchase intent [20]. Overall, marketing events can be divided into two parts. The first part is related to the movie content, such as trailers, posters, and conferences, which introduce the plot summary of the movie, the main actors, the release time, and so on. The second part is related to the surrounding information of the movie, which does not directly introduce the content of the movie, but publishes information about the box office and popularity to attract the attention of the audience. The different emphasis and starting points of different channels and events will inevitably lead to different consumer responses and produce differentiated marketing effects. Therefore, it is necessary to conduct a comparative study on the effect paths of different marketing channels and events on movie box office.

The objective of the current research is to enhance our understanding of social media marketing as well as its effectiveness and mechanism behind. We are interested in the following research questions: (1) How different channels and events in social media marketing achieve box office success through different consumers' responses? (2) What types of movies are more suitable to launch social media marketing? Answers to this question will help us to delineate the effects of social media marketing on different stages of persuasion and differentiate the effect paths between different channels or events of social media marketing on movie box office.

The remainder of this paper is organized as follows. In the next section, we introduce the elaboration likelihood model (ELM) as the theoretical frame of the current work. The ELM was originally developed to understand the processing of persuasive information from a social psychology perspective. We adopt the ELM to guide our investigation of the relationships between social media marketing, attention, attitude, elaboration, and box office performance. Section 3 presents the research model and the reasoning of our hypotheses. This is followed by an overview of research setting and data analysis in Sections 4 and 5. Section 6 discusses the findings and their theoretical and practical implications. Section 7 concludes the paper.

## 2. The Elaboration Likelihood Model

Buying a movie ticket can be conceptualized as a stimuli-based decision-making process. In the context of social media marketing in movie industry, the stimuli can be text, image, video and other forms presented in social media. The channels and contents of these stimuli may constitute different marketing effect on audience. To

provide a theoretical frame for our analysis, we make reference to the ELM of persuasion [21]. Originally, the model was developed to provide an organized framework to address issues related to information sources, personality, and context effects of persuasion [22]. It is helpful to explain the different behaviors induced by the same variable at different stages of the persuasion process.

A typical information processing model postulates a stage approach consisting of the following stages: attention, elaboration, and behavior [23]. Although these stages present the complete process of message processing, not every stage is necessary. Some stimuli may not even get the attention of the person while changing behavior directly. It thus becomes important to understand how social media marketing affects each stage of information processing. ELM suggests that a person has a series of elaboration approaches to process messages. Customers may engage in elaborating cognitive thinking or just use simple decision rules to respond and take action. The nature of elaborative processing involves generating one's own thoughts rather than paying attention to the message simply.

When message recipients have both the motivation and the ability to consider detailed information in a given message, persuasion occurs via the central route. When central route takes place, recipients use critical thinking and consideration to process information, which needs more cognitive effort and careful observation. In this route, recipients change their attitude due to comprehensive consideration of relevant arguments supporting the advocated view.

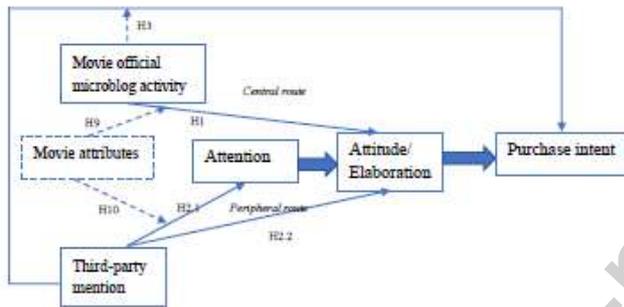
When message recipients lack either motivation or ability to cope with the detailed information in a given message, they adopt peripheral route. In this route, recipients rely on simple cues (e.g., "This movie is popular, so I want to see it.") for judgment formation with less thoughtful processing. When peripheral route takes place, not all information is considered and inferences based on rules of thumb are used to make the decision [24]. For peripheral processing, an associated decision rule has to be cognitively available, accessible, and perceived as a reliable basis for judgment [25].

The central and peripheral route are distinct in at least three ways [26]. First, the types of information that two routes process are different. The central route processes message-related arguments, while the peripheral route processes cues. Second, the central route requires a much higher level of cognitive effort than peripheral route. When processing information in central route, message recipients need to think comprehensively about the arguments presented, evaluate the quality of messages, and combine multiple arguments into an overall evaluative judgment. While in peripheral route, recipients merely associate salient positive or negative cues related to the attitude object [27]. Third, the perception changes via central route are generally more stable and enduring since they are based on deliberate and thoughtful consideration of relevant arguments [21]. In contrast, changes via peripheral route are less persistent and more susceptible to counterinfluence.

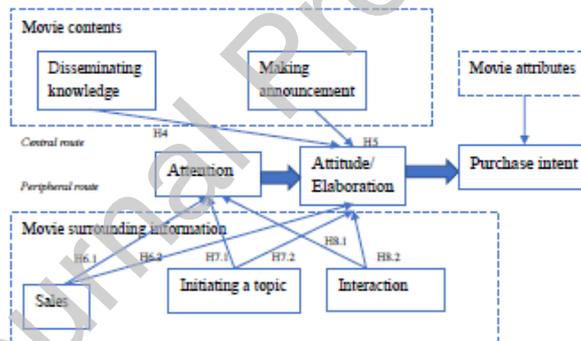
### 3. Research Model and Hypothesis

Focusing on the channels and events of social media marketing, we obtain our

research model in reference to ELM, as depicted in Figures 1 and 2. In Figure 1, the essence of social marketing channels is captured by two variables: level of movie official microblog activity and third-party media mention, which adopts central route and peripheral route respectively to influence audience. In Figure 2, the social marketing events are divided into five categories: disseminating knowledge, making announcement, sales, initiating a topic, and interaction. They are further grouped into two categories, one related to movie contents and the other related to surrounding information. The two types influence audience in ways according to the central–peripheral dichotomy of the ELM. Given our focus on the behavioral outcomes induced by social media marketing, attitude change, and elaboration are regarded as the same process in our model.



**Figure 1:** Research model of different social marketing channels



**Figure 2:** Research model of different social marketing events

### 3.1 Social media marketing channels

The movie official microblog focuses on business-related information. For the purpose of establishing a positive image, the contents it publishes are mostly about specific movie introduction and positive movie attributes. The audience needs to pay more cognitive effort to process information and judge the views of the official microblog. In addition, the audience is willing to devote time and energy to analyze and judge the information of the official microblog because it is related to personal purchase needs. At this time, the information of the official microblog is highly relevant to the audience. Therefore, the persuasive effect of the movie official

microblog on the audience belongs to the central route. In this route, audience will judge the argument quality of the movie official microblog with careful consideration [26]. According to the research of Tam and Ho [24], when central clues impact purchase behavior, audience change their attitude towards the movie, and stimulate elaboration directly without going through attention stage. The high level of movie official microblog activity contributes to the full understanding of the movie with the form of text, pictures, music, videos, and so on, and induce the audience to change attitude and stimulate elaboration. Finally, ticket purchase behavior is promoted. On the contrary, the less posts published by the official microblog, the less information the audience has about the movie, the more difficult it is to change their attitude towards the movie, and the less likely it is to purchase a ticket.

At present, many research results support this hypothesis of intermediary path. Mackenzie et al. [28] defined attitude towards the ad (Aad) as a “pre-disposition to respond in a favorable or unfavorable manner to a particular advertising stimulus during a particular exposure occasion”. They verified the mediating role of attitude in the relationship between advertising and buying intentions, and believed that advertisements would influence consumers’ attitude towards brands and then influence purchase intentions. Rajagopal [29] analyzed the influence of information related and economic variables on cognitive attributes of consumers towards promotion led buying behavior. It was suggested that advertising influenced attitude and in turn attitude influenced behavior. In social media context, Rishika et al. [30] found that a more active and vibrant community with regular new message postings would create trust and allow customers to infer the level of a firm’s relationship commitment and bolster customers’ bond with the firm. Thus, an active social media page with regular new messages/postings is helpful for customers to form more positive attitude towards the firm and strengthen the customer–firm relationship. Thus, we hypothesize the following.

H1. Higher level of movie official microblog activity leads to higher movie box office through improving audience’s attitude towards the movie.

Different with official microblog, third-party media focuses on media attributes. Most of the published content is movie evaluation, which objectively describes the advantages and disadvantages of the movie. Because the third-party media is objective and neutral, usually the audience has less resistance and is more willing to accept the evaluation of the third-party media. It is likely that audience will even project positive attitudes such as trust and love of the third-party media to its recommendations. Sometimes, the audience’s attention to third-party media is not necessarily an urgent purchase demand, but may be a preparation for future demand. For example, audience who are concerned about movie media may not necessarily have the need to watch a movie at the moment, but attracted by third-party media recommendations, they may walk into the cinema to watch movies recommended by third-party media in the future. Therefore, the information of third-party media is less relevant to the audience. To sum up the above two points, the persuasive effect of the third-party media on the audience belongs to the peripheral route [26].

When dealing with peripheral clues, individuals do not think deeply about the

viewpoint of information inclusion, and only make decisions based on the judgment of the reliability of information sources. For experiential products like movie, the more information a third-party media releases about a product, the more individuals can feel the support and preferences of the third-party media for the product, and the more likely it is that audience project positive attitude of the third-party media to the movie and purchase a ticket to promote movie box office. Conversely, if third-party media mentions a movie rarely, it is hard to get the attention of the audience, leading to relatively negative movie attitude and smaller possibility of purchasing behavior. Taking the microblog context as an example, individuals pay attention to a third-party media that often recommends movies. Due to their trust in the platform, individuals will have a good impression on movies they recommend many times without going through the movie introduction in detail, and will purchase a ticket afterwards. According the research of Tam and Ho [24], when peripheral clues impact purchase behavior, audience either go through attention stage or change their attitude and stimulate elaboration directly. Bhattacharjee and Sanford [26] also believe that peripheral route act on individual's emotional response rather than rational judgment, that is, individuals who use the peripheral route to process information will use professional information source recommendations to replace their hard-working thinking processes and adopt more effort-saving ways to make decisions. For experiential products like movies, it is hard for audience to infer movie quality based on text descriptions. Therefore, third-party mentions are particularly important.

The relationship between third-party mention and product attention or attitude has been investigated by many studies. For example, Kamins and Marks [31] proved that third-party certification was effective in stimulating positive product sentiment and purchase intentions; Bhattacharjee and Sanford [26] believed that if message recipients trusted the spokesperson, they would project their favorable for the spokesperson to the product, producing more positive product preferences and attitudes; The mere exposure effect proposed by Janiszewski [32] supported the process of third-party media's impact on the audience from another perspective, that is, if individuals continued to accept product information in an unconscious state, they would generate a positive attitude towards the product. The research literature on the relationship between product attitude and product sales is even more numerous. It is confirmed that brand attitude has a direct impact on purchase intention [28, 33]. On the other hand, the more information the media releases, the more it can attract the attention of the audience, and the more likely it is that consumers will take purchasing behavior. For example, Tam and Ho [24] used the ELM model as a theoretical basis to confirm that other users' ratings can act as the clues and attract consumers' attention, and the ability of attraction depended on the prominence of visual objects; Agnihotri et al. [34] believed that social media in the B2B context can promote consumer participation and interaction, indicating that third-party media were inherently attractive enough. Following this line of reasoning, third-party mention is expected to exert an indirect effect on purchase intent through attitude and attention, as stated in the following hypothesizes.

H2.1: Higher level of third-party mention leads to higher movie box office

through attracting audience's attention towards the movie.

H2.2: Higher level of third-party mention leads to higher movie box office through improving audience's attitude towards the movie.

According to Petty and Cacioppo [35], peripheral persuasion variables may affect the extent or direction of message processing. In other words, it is possible that a peripheral variable will interact with the central variable to either enhance or reduce the processing of content. The interaction effect of central route and peripheral route has also been investigated by several researchers. For example, Tam and Ho [24] defined preference matching of web personalization as central route and sorting cue as peripheral route of persuasion. It is found that the difference in the extent of elaboration between high- and low-levels, preference-matching content will be larger for content with a sorting cue than for content without a sorting cue. Algarni [36] believed that in SNS (Social Networking Services), the peripheral cues, such as correct spelling, correct grammar, and supporting pictures, may be influential to users' perception towards central route, which was defined as argument quality dimensions. While the analysis showed no moderation effects between peripheral cues and users' perception towards argument quality dimensions, the application of mediation tests showed that argument quality had a partial mediation effect between susceptibility to social engineering victimization and peripheral cues.

As stated in H1, when movie official microblog maintains a high level of activity, a high level of movie box office will be induced through improving audience's attitude. We further expect that such a difference in box office is larger in the high level of third-party mention than low level. This is because, if the movie official microblog updates the related information of the movie rarely, the audience will not find the movie attractive and the evaluation or introduction posted by third-party media will not motivate or help them much in purchase intent. On the other hand, if the movie official microblog keeps introducing or showing the movie frequently, the audience will know more about the movie and be interested in it. The high level of third-party mention becomes relevant and helps the audience learn about the movie more comprehensively, then motivating them in purchasing a ticket. The audience will have a more polarized purchase behavior between high-level and low-level movie official microblog activity when third-party microblog updates information about the movie frequently than otherwise. Therefore, we hypothesize the following.

H3. The difference in the purchase intent between high-level and low-level movie official microblog activity will be larger for movie third-party media mentions frequently than for movie third-party media mentions rarely.

### 3.2 Social media marketing events

Next, we want to explore the events of social media marketing regardless of the difference in marketing channels. The contents in social media encapsulate the main topics of attraction to the audience, implying varying kinds of event promotional strategies via the social media platform. According to Li and Duan [20], social media marketing events can be classified into five categories, that is disseminating knowledge, making announcement, sales, initiating a topic, and interaction. Different marketing events focus on different aspects of the movie, and we believe that they

impact movie box office in different ways.

The ELM literature identifies the major variables that affect the persuasiveness of a message as the quality/merits of the message's arguments [24]. These variables are found to affect purchase intent through the central route of persuasion. In the current context, disseminating knowledge and making announcement are selected as the variables affecting purchase intent through the central route. Knowledge refers to a series of marketing events, such as trailers, posters, theme songs, stills, highlights, and so on, which are related to the movie directly and can help the audience know about the contents of upcoming new works. Announcement refers to information about some marketing events held offline, such as press conferences and road shows. These offline marketing events usually announce the premiere time, and invite key actors to the scene for publicity and interaction, with the aim of introducing the movie contents and announcing the important information of the movie. One measure of the quality or merits of social media marketing is the extent to which this kind of marketing can introduce the movie and attract the audience, and can therefore provide audience with critical information about the quality of the movie [37]. When dealing with the concrete plots or actors introduction of the movie, the audience needs more cognitive efforts. In addition, the audience is willing to devote time and energy to analyze the introduction and the advance display of the movie content because it is related to personal purchase needs. At this time, the knowledge and announcement are highly relevant to the audience. Therefore, the persuasive effect of the knowledge and announcement on the audience belongs to the central route.

Previous studies have investigated the relationship between movie content marketing and the purchase intent. For example, a majority of moviegoers (55.9%) report that trailers influence their ticket purchase decisions more than user reviews, recommendations, or other factors [38]. Barnett and Cerf [39] regarded a movie trailer as an especially rich stimulus because it simultaneously tried to tell a story and drive future ticket sales. Karray and Debernitz [37] believed that trailer advertising provided valuable information that can help viewers and investors form expectations about the movie's future success. The results of event study and cross-sectional analysis showed that the appeal of the movie plot revealed in the trailer, the number of scene cuts and the inclusion of violent, sexual, or humorous scenes would influence the movie's abnormal returns. Except for trailers, Finsterwalder et al. [40] showed that the actors were the greatest influencers on film quality expectations. Thus, press conferences and road shows provide a close contact of the main actors for the audience, which is helpful to form a good expectation and increase purchase intent. Elberse [41] found that before the film's release, the announcement of casting or changing roles helped to increase the movie's revenue.

In addition to the effect on purchase intent, the movie content marketing can also be an antecedent of the viewers' attitude towards the movie [32, 42]. This is especially relevant since the advertising literature showed a significant effect of the movie trailer content on viewers' attitude and expectations for the movie [43]. For example, the actors and director choice, the trailer's storyline and the movie's genre impact viewers' attitude towards the trailer [40]. Therefore, it is reasonable to hypothesize that movie

content marketing act as central variables and increase purchase intent through improving audience's attitude.

H4: Disseminating knowledge leads to higher movie box office through improving audience's attitude towards the movie.

H5: Making announcement leads to higher movie box office through improving audience's attitude towards the movie.

Except for disseminating knowledge and making announcement, social media marketing can take the form as sales, initiating a topic and interaction. These events, in essence, do not change the perceived quality of the movie content itself (i.e., they are not directly relevant to the movie content) or help the audience to learn about the plots or actors of the movie. However, their effects become salient when the audience has a weak motivation or ability to process the persuasive messages. For example, when a potential viewer is too busy to watch the trailers or attend the press conference, he may decide whether to buy a movie ticket through popularity metrics like sales or topics. Using the terminology of the ELM, these variables correspond to information processing via the peripheral route by triggering the audience's attention and attitude.

Previous studies have shown that movie with higher sales rank is easier to catch the audience's attention and improve public attitude towards the movie. Cabral and Natividad [44] suggested that being #1 in sales during the opening weekend had an economically and statistically significant effect on the movie's total demand; and that the primary channel for this effect was through the greater awareness induced by being #1. Joshi and Mao [45] based on book-movie similarity and found that the same as books, sales rank was a good proxy for movie sales, which followed the research in consumer behavior and economics that related market share and quality perceptions [46, 47]. Therefore, we hypothesize that publishing information about sales on social media is a way to show the popularity of movies. It can help audience who lack deep thinking skills and motivation to take a peripheral path, trigger attention, change attitude and promote purchase intent finally.

H6.1: Sales leads to higher movie box office through attracting audience's attention towards the movie.

H6.2: Sales leads to higher movie box office through improving audience's attitude towards the movie.

In social media marketing, one of the most commonly used methods is to create heat topic to increase sales. When a movie has a high topical enthusiasm, it is easier for the audience to hear about and pay attention to the movie, thereby stimulating the audience's willingness to watch it. Especially when the audience lacks the ability or motivation for deep processing, this kind of peripheral clue that the movie is popular or the topic is hot can trigger the heuristic processing of the audience, so that more viewers choose to watch the movie because they are unwilling to miss the current trend. There are many studies on the relationship between topic heat or popularity and movie box office. For example, Lu [48] based on the Chinese film market and analyzed movie box office factors from deferent ways combining with the big data of social media and search index. Using analytic hierarchy process (AHP) method, the author found that story heat was one of the factors that influencing movie box office.

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Liu et al. [49] showed that the attention and popularity of the movie and purchase intention of users were beneficial to predict the box office revenue of a movie before its theatrical release. In line with previous research, therefore, we hypothesize the following.

H7.1: Topic leads to higher movie box office through attracting audience's attention towards the movie.

H7.2: Topic leads to higher movie box office through improving audience's attitude towards the movie.

In social media marketing, in addition to publishing some information related to the movie, either directly related to the content of the movie (i.e., trailers, posters, conferences, etc.) or related to the surrounding information of the movie (i.e., sales, topics, etc.), interaction with users is another efficient way. Although the purpose of interaction is not to introduce the content of the movie to the audience or to show the popularity of the movie, it can also serve as a peripheral clue to promote consumers' purchase intent. Many researches have investigated the importance of interaction in social media marketing. For example, Li and Duan [20] suggested that the key to use social media marketing was to create meaningful two-way interaction and dialogue with audiences, rather than simply making announcement. Rishika et al. [30] believed that customers who chose to engage with the firm through its social media site gained easier access to messages from both the firm and other customers. Upon creating social media sites (e.g., Facebook pages and Twitter accounts), if firms fail to interact regularly with their clientele through this new medium, it could create customer skepticism and result in less favorable behavioral outcomes. In the course of interacting, these persuasive messages influence a user by diverting attention, reallocating cognitive resources, and evoking affective responses and behaviors [24]. As interaction with the audience does not affect the quality of the persuasion messages, we believe that interaction promotes purchase intent through peripheral route that is through attracting the attention of the audience and improving the attitude towards the movie. Hence, we hypothesize the following.

H8.1: Interaction leads to higher movie box office through attracting audience's attention towards the movie.

H8.2: Interaction leads to higher movie box office through improving audience's attitude towards the movie.

### 3.3 Movie attributes

Previous studies indicate that movie attributes play a key role in box office and marketing effectiveness [50, 51], that is, the same marketing intensity will create different levels of elaboration based on the different attributes of movies. Movies have a variety of different attributes, which can be divided into first-party product attributes and third-party product attributes based on the attribute source that affects the perceived quality of the experience product [52]. For example, sequel attributes, import attributes, and 3D attributes belong to first-party movie attributes, and third-party movie attributes include professional and user-generated word-of-mouth. Audience will also decide whether to buy movie tickets based on different attribute characteristics of movies. Therefore, from the perspective of product attributes, we

first study the impact of movie attributes represented by holiday schedule, sequel and import on movie box office and marketing effectiveness.

The sequel movie is a continuation of the story of the movie that has been released, and is also a brand extension of the parent movie [50, 51]. The box office revenue of the sequel movie depends largely on the performance of the box office and word-of-mouth of the parent movie [51, 53]. Relative to non-sequel movies of the same period, sequel movies may have a higher audience popularity and usually receive a higher box office [45, 50, 54]. Some scholars believe that the sequel movie is a brand extension of the parent movie, and the box office and word of mouth of the parent movie can lead to brand spillover effects, which directly or indirectly affect the box office of the sequel movie [50, 51]. Hennig-Thurau, Houston [51] analyzed the value of brand extension through the box office of the sequel movie and found that brand extension can generate higher average returns and reduce risks. Using data from 3396 films from 1983 to 2008, Dhar et al. [50] found that compared with non-sequel films, the good market performance of sequel films was often indirectly attributed to the theater's preference for the release of sequel films. This preference may help sequel movies get higher attention of audience because from the perspective of attention economy, out of curiosity, consumers usually pay more attention to the release of new movies [55]. However, Basuroy and Chatterjee [53] found that over time, the weekly box office of sequel films declined faster than non-sequel films. This shows that the sequel films can attract a large number of curious viewers during the premiere week, but this attraction is difficult to maintain. Therefore, we believe that compared with non-sequel movies, sequel movies can get a higher box office, but the attraction to the audience is more short-lived, and greater social media marketing intensity is needed to maintain sustained attraction to increase box office. Based on this reasoning, we hypothesize the following.

H9.1: There is an interaction effect between sequel attribute and official microblog activity, with official microblog activity having a more salient effect on box office in sequel movies than non-sequel movies.

H10.1: There is an interaction effect between sequel attribute and third-party mention, with third-party mention having a more salient effect on box office in sequel movies than non-sequel movies.

Consumers will use "import" and "domestic" as a label or clue to infer the quality of the product, or as a symbolic information to decide to choose foreign brands and imported products. On the whole, Chinese consumers have a certain preference for imported products [56]. On one hand, imported movies meet diverse choice needs of consumers, and may contribute to consumer addiction, which is an important determinant of movie demand [57]. The attractiveness of the high-cost and large-scale production of Hollywood movies and the cultural distance are the main factors that Chinese consumers have a good opinion of imported movies [58]. Moreover, usually high-quality movies with good market performance will be introduced into China for screening. Therefore, the import attribute can usually promote the box office revenue of the movie.

But on the other hand, based on the phenomenon that domestic films have

surpassed imported films in the box office rankings in recent years, Melati [59] studied the impact of cultural discounts and market factors on movie box office and found that box office of imported movies may not be better than that of domestic movies due to cultural discount. Cultural discount means that in the international cultural trade, movies (or cultural products such as TV series) will have lower product value due to the inherent cultural factors that are not recognized or understood by other ethnic audiences [60]. The factors leading to cultural discounts mainly come from differences in cultural background and values. Moreover, out of a sense of identification with local culture, consumers usually show higher evaluation of products from local sources [61]. Through the above analysis, the import attribute may be conducive to the growth of box office, but due to the cultural discount and consumers' sense of national culture, compared with imported films, domestic audiences are easier to accept the cultural value of domestic films, so under the same marketing intensity, the marketing effectiveness of domestic films is better. Hence, we propose the following hypothesis.

H9.2: There is an interaction effect between import attribute and official microblog activity, with official microblog activity having a more salient effect on box office in domestic movies than imported movies.

H10.2: There is an interaction effect between import attribute and third-party mention, with third-party mention having a more salient effect on box office in domestic movies than imported movies.

Companies often carefully consider when to launch products because product launch time affects product sales [62, 63]. For highly competitive movie products, the choice of schedule is more relevant to the success of the movie [64]. Krider and Weinberg [62] studied the issue of how to choose the schedule of movie products and proposed the schedule selection model and strategy according to the game equilibrium theory. When choosing a schedule, in addition to considering the matching degree of the schedule with the movie theme, it will also consider whether the schedule is a popular holiday schedule, such as Easter and Christmas in the United States [62, 63], as well as popular festivals such as summer holidays, Spring Festival and National Day in China [65]. During the hot holiday season, consumers have more time and willingness to spend on entertainment and it is more conducive to gain consumer attention [65]. At this time, the effect of increasing the event marketing intensity of the film is better than that during the non-festival period. Thus, we hypothesize the following.

H9.3: There is an interaction effect between holiday schedule attribute and official microblog activity, with official microblog activity having a more salient effect on box office in movies of holiday schedule.

H10.3: There is an interaction effect between holiday schedule attribute and third-party mention, with third-party mention having a more salient effect on box office in movies of holiday schedule.

## 4 Research setting

### 4.1 Sample selection

Sina Weibo (hereinafter referred to as Weibo) is currently the largest microblogging service social network in China. According to statistics released by Sina, as of the end of 2019, Sina Weibo's monthly active users reached 516 million, and more than 14 million brands have entered the Weibo platform. Among them, many movies have registered their official Weibo accounts and continued to release movie-related information to attract fans and consumers' attention. In addition, many third-party media organizations have settled on the Weibo platform and actively released product discussion and evaluation information. Based on the huge user base and the richness of movie-related brands, Weibo can serve as a good social media marketing platform. Therefore, this study selects Weibo as the representative of social media platform to conduct research to explore the impact of different marketing channels and events on movie box office.

This article selects movies released in 2017–2019 as the research object. Through screening movies with official Weibo accounts, we finally select 304 movies as samples and obtain relevant information, such as movie attributes and box office. Then, we use Weibo API and its own search engine to collect the relevant data of the obtained samples. In order to avoid repeated calculations, we have deleted the duplicated Weibo posts in the sample data set to improve the accuracy of the conclusion. Finally, we obtain 90,088 posts related to our sample movies. On average, each movie has 296 posts in Weibo, with the minimum being one post and the maximum being 1235 posts.

## 4.2 Variable Operationalization

### (1) Dependent variables

*boxoffice.* The dependent variable for this article is the box office for movies. Box office data for movies comes from Maoyan Movies, which is one of the most professional box office record platforms in China. The website provides daily box office data and overall box office data for sample movies. According to Maoyan Entertainment's financial report for the first half of 2019, Maoyan Entertainment's market share exceeded 60% in the first half of 2019, and it is still higher than the same period last year. It can be seen that the Maoyan platform has a leading share in the online movie tickets market, and the box office information published on the platform is professional and reliable. Therefore, it is reasonable for us to use the box office data of Maoyan Movies as a reference. In the 304 sample films, the average box office is about 239 million yuan.

### (2) Independent variables

*official.* This article uses the posts number of movie's official Weibo account as its official media activity. A company with relevant qualifications can become an official enterprise account by applying for certification. The content published by the officially certified account is more authoritative and reliable. The count of the number of posts starts on the day of opening account and ends on the total box office count date.

*thirdparty.* The activity of third-party media mention is measured by the number of posts containing the target movie name published by the "Weibo Movie" account. We choose "Weibo Movie" as the object of third-party media data collection because

it has a strong appeal in movie promotion and is an opinion leader in the movie industry with more than 10 million followers. In addition, when we further analyze its content, we find that it does not cover all movies, but only selectively releases information about movies that it considered to be high-quality or currently popular, which are in line with our definition of third-party media characteristics. The count of the number of posts starts with the first Weibo posting related the target movie and ends with the total box office count date.

*knowledge.* Publishing knowledge about the movie can help the audience better understand the content of the movie, the cast, and a summary of the scene, so as to promote the audience's willingness to watch. Through screening and analysis of the contents published by the official Weibo account and third-party Weibo account, the knowledge about the movie includes marketing events such as trailers, posters, specials, theme songs, stills, highlights, and so on. The total number of posts with these contents is the value of the marketing event, disseminating knowledge.

*announce.* In addition to the online release of trailers, posters, and other knowledge, Weibo will also release information about some marketing events conducted offline, such as press conferences and road shows. These offline marketing events usually announce the premiere time, as well as invite key actors to the scene for publicity and interaction, in order to maximize the popularity of the movie and the audience's viewing interest. The total number of posts related to press conference and road shows is the value of the marketing event, making announcement.

*sales.* Official microblog and third-party media will publish sales information about movies on Weibo to show the popularity of movies, which will in turn stimulate audiences' herd mentality and promote movie sales. We use the number of posts with the target movie sales as the value of the marketing event, sales.

*topic.* Weibo users can use the tag, “#” to initiate topics for discussion. Official microblog account and third-party media can raise the popularity of movies by initiating movie-related topics and attract the attention of audiences. When a topic reaches a certain amount of reading and discussion, it can also appear in popular searches, which directly becomes the focus of public. Therefore, initiating a topic discussion is a common and effective marketing tool. The number of posts with “#” can be used as the value of the marketing event, initializing a topic.

*interaction.* In addition to publishing original content, official microblog and third-party media will also forward other posts or mention other users to achieve interaction, thereby achieving better marketing results. We use the number of reposts and posts with “@” as the value of the marketing event, interaction.

### (3) Mediation variable

*attention.* Attention is measured by the number of movie's official Weibo account fans. In the context of Weibo, if the product has attracted the attention and interest of consumers, consumers will follow the official Weibo account of the brand to further obtain more information about the product. Because a movie-type Weibo usually only involves one movie product, the number of official Weibo account fans of the target movie can reflect the number of consumers who pay attention to the movie.

*elaboration.* Elaboration is measured by the number of people who want to watch the movie. Willingness to watch a movie reflects the audience's attitude towards the film, and has a strong correlation with the final box office. The Maoyan Movie also records the number of people who want to watch the movie, and we use it as the measurement of elaboration.

#### (4) Control variables

*duration.* According to the existing literature and related data, the film duration not only reflects the production cost of the film, but also provides more information for the audience. Box office for longer films will also be higher [54, 66]. Therefore, this article controls the length of the movie in minutes.

*sequel.* The sequel film is the continuation of the story of the parent film, and its market performance is closely related to the parent film. Relevant research usually considers uses the sequel attribute as a dummy variable. The results show that sequel attributes can promote box office revenue [45, 54, 66]. In this paper, in accordance with the previous research, the sequel is used as a dummy variable and controlled.

*holiday.* The number of films shown in different periods is usually different. Using popular dates as the movie's premiere date can get more potential audiences, but it may also encounter more competitors [54, 66]. Lee and Choeh [65] made a detailed division of popular dates in China. On this basis, this article divides 11 popular holidays from 2017 to 2019, that is, New Year's Day, Spring Festival, Valentine's Day, Qingming Festival, Labor Day, Dragon Boat Festival, Children's Day, Summer holiday, Mid-Autumn Festival, National Day, and Christmas.

*3d.* 3D technology can bring a better movie viewing experience to the audience, but the movie cost and movie ticket price will be higher. Therefore, it is also worth studying whether 3D technology can promote box office. In this paper, whether the film is a 3D system is used as a dummy variable and included in the control variable.

*import.* Existing literature usually focuses on the market performance of movies in different countries [66] or different regions of the country [67, 68]. It is also worth studying the performance differences between imported films and domestic films in the same market and whether movie import attributes can promote box office revenue. In this paper, whether the movie is imported or not is used as a dummy variable included in the control variable.

*genre.* Different types of movies attract different consumer groups and have a certain impact on the box office of movies [51, 69], so the type of movie is controlled. Regarding movie types, different scholars have different classification standards. Gopinath et al. [67] considered three movie genres: comedies, action movies, and dramas; Joshi and Hanssens [70] classified five movie genres: action movies, comedies, dramas, family movies, and romantic movies; Liu et al. [71] divided movie types into action movies, science fiction movies, comedies, dramas, romantic movies, and horror movies. On this basis, according to the box office data of Maoyan movies, we divide movies into seven types, namely, romantic movies (27, 8.9%), action movies (45, 14.8%), cartoons (25, 8.2%), documentaries (10, 3.3%), dramas (91, 29.9%), comedies (84, 27.6%), and suspense movies (22, 7.2%). In the subsequent analysis, we find that if genre is used as a dummy variable and all six types of values

(one of which is used as the reference group) are included in the model, the coefficient values of each type are not significant. It can be seen that there is no significant difference in the impact of different types of movies on the box office. Therefore, we treat genre as a categorical variable and assign the value of 0–6 according to adulthood degree. Finally, the value of 0–6 represents cartoons, comedies, action movies, dramas, documentaries, romantic movies, and suspense movies, respectively.

## 5 Data analysis and hypothesis testing

### 5.1 Statistics and correlation analysis

A total of 304 samples of data are collected and analyzed using SPSS19.0. The sample descriptive statistics and the Pearson correlation coefficients are shown in Table 1. It can be seen that each independent variable is significantly related to the movie box office, and each variable is also significantly related to the two mediation variables, attention and elaboration. However, the correlation coefficient cannot reflect the causality and mediation effect between variables, so further hypothesis testing is needed.

**Table 1:** Descriptive statistics and Pearson correlation coefficients

	boxoff fice	offici al	thirdp arty	knowl edge	annou nce	sale	topic	interac tion	attent ion	elabor ation	durat ion	seque l	holid ay	3d	imp ort
boxoff ice	1														
official	0.476 ***	1													
thirdpa rty	0.517 ***	0.299 ***	1												
knowl edge	0.528 ***	0.781 ***	0.420 ***	1											
annou nce	0.557 ***	0.639 ***	0.226 ***	0.500* **	1										
sale	0.428 ***	0.458 ***	0.401 ***	0.508* **	0.456 ***	1									
topic	0.476 ***	0.408 ***	0.327 ***	0.365* **	0.307 ***	0.395 ***	1								
interac tion	0.463 ***	0.440 ***	0.391 ***	0.407* **	0.300 ***	0.325 ***	0.740 ***	1							
attenti on	0.329 ***	0.444 ***	0.216 ***	0.419* **	0.189 ***	0.154 ***	0.338 ***	0.247 ***	1						
elabor ation	0.492 ***	0.437 ***	0.345 ***	0.390* **	0.285 ***	0.278 ***	0.425 ***	0.350 ***	0.417 ***	1					
duratio n	0.206 ***	0.111 **	0.323 **	0.193* **	0.063 **	0.124 **	0.163 ***	0.154 ***	0.120 **	0.122* **	1				
sequel	0.274	0.154	0.063	0.169* **	0.152	0.107	0.275	0.229	0.262	0.285* **	—	1			

	***	***	***	**	***	*	***	***	***	**	0.00				
											4				
holiday	0.346 ***	0.312 ***	0.278 ***	0.328* **	0.234 ***	0.269 ***	0.226 ***	0.215 ***	0.149 ***	0.308* **	0.00 4	0.192 ***	1		
3d	0.203 ***	0.157 ***	0.133 **	0.203* **	0.111 **	0.084	0.227 ***	0.221 ***	0.178 ***	0.154* **	0.10 5*	0.246 ***	0.188 ***	1	
import	— 0.134 **	— 0.352 ***	— 0.033	— 0.301* **	— 0.284 ***	— 0.118 **	— 0.066	— 0.082	— 0.100 *	— 0.148* **	0.10 7*	0.010	— 0.223 ***	0.09 5*	1
mean	34,173. 007	307.7 7	7.461	24.303	23.55 1	18.61 0	183.8 64	124.3 03	132.00 8.031	96,379. 688	109. 065	—	—	—	—
SD	74,483. 466	258.2 85	11.52 2	20.995	42.61 5	27.04 1	183.4 46	138.8 89	305,46 2.399	150,384. 723	16.2 56	—	—	—	—

## 5.2 Study 1: social media marketing channels

Study1 investigates the different effect paths of different marketing channels on the box office. This paper uses two methods, hierarchical regression analysis and bootstrap, to verify the mediating effect. According to [72], hierarchical regression analysis can be tested in four steps: First, testing whether the independent variable has a significant effect on the dependent variable; second, testing whether the independent variable has a significant effect on the mediating variable; third, testing whether the independent variables and the mediating variables have a significant effect on the dependent variable simultaneously; fourth, if at least one of the variable in the third step is not significant, a Sobel test is performed. To further confirm the existence of the mediating effect, we use SPSS to perform the Bootstrap test again. The Bootstrap sample is 5000 and the confidence interval is 95%.

In the analysis of the effect path of the official microblog activity, the elaboration is first used as the dependent variable, and the official microblog activity and control variables are introduced (see Model 2-1 in Table 2). Then, the box office is used as the dependent variable and official microblog activity and control variables are introduced in Model 2-2. In Model 2-3, we add the mediation variable, elaboration to test the mediation effect. It can be seen from the table that after adding the control variables, the official microblog activity has a significant positive impact on the elaboration ( $\beta = 169.735$ ,  $p < 0.01$ ) and the box office ( $\beta = 79.941$ ,  $p < 0.01$ ). Official microblog activity ( $\beta = 60.613$ ,  $p < 0.01$ ) and elaboration ( $\beta = 0.114$ ,  $p < 0.01$ ) also have a significant positive impact on box office simultaneously. Therefore, we can consider that elaboration plays a partial mediation role between the official microblog activity and box office. H1 has obtained preliminary support.

**Table 2:** Effect path of official microblog activity

Dependent variable	Elaboration		boxoffice
	Model 2-1	Model 2-2	Model 2-3
official	169.735***	79.941***	60.613***
duration	508.703	535.646***	477.717***

sequel	94,214.554***	27,976.035***	17,247.370*
holiday	52,257.828***	19,553.299***	13,602.448**
3d	13,977.616	4777.620	3185.922
import	-1078.888	3805.589	3928.447
genre	4602.779	-1331.393	-1855.534
elaboration			0.114***
Adjust-R <sup>2</sup>	0.219	0.249	0.308
F-value	13.123***	15.336***	17.860***

Notes. \*\*\*, \*\*, and \* denote significance at 1%, 5%, and 10%, respectively. The same below.

In the analysis of the effect path of the third-party media mention, attention and elaboration are used as the dependent variable in Models 3-1 and 3-2, respectively (see Table 3). Then, the box office is used as the dependent variable and third-party mention and control variables are introduced in Model 3-3. In Models 3-4 and 3-5, we add attention and elaboration as mediation variable, respectively, to test mediation effect.

It can be seen from the table that after adding the control variables, the third-party media mention has a significant positive impact on attention ( $\beta = 5402.574$ ,  $p < 0.01$ ), elaboration ( $\beta = 2897.545$ ,  $p < 0.01$ ) and box office ( $\beta = 2129.285$ ,  $p < 0.01$ ). When attention acts as the mediation variable, third-party media mention ( $\beta = 1982.727$ ,  $p < 0.01$ ) and attention ( $\beta = 0.027$ ,  $p < 0.01$ ) have significant positive effects on box office simultaneously. When elaboration acts as the mediation variable, third-party media mention ( $\beta = 1791.546$ ,  $p < 0.01$ ) and elaboration ( $\beta = 0.117$ ,  $p < 0.01$ ) also have significant positive effects on box office simultaneously. Therefore, we can consider that attention and elaboration both play a partial mediation role between the third-party media mention and box office. H2.1 and H2.2 have obtained preliminary support.

**Table 3:** Effect paths of third-party media mention

Dependent variable	attention	elaboration	boxoffice		
	Model 3-1	Model 3-2	Model 3-3	Model 3-4	Model 3-5
Thirdparty	5402.574***	2897.545***	2129.285***	1982.727***	1791.546***
duration	1133.785	329.331	298.297	267.540	259.910
sequel	183,750.594***	101,353.754***	30,839.060***	25,854.351***	19,025.201**
holiday	12,620.283	49,469.727***	14,105.943**	13,763.586**	8339.720
3d	84,776.643*	19,192.720	6092.249	3792.463	3855.133
import	-66,691.732*	-33,309.820**	-11,618.090*	-9808.904	-7735.475
genre	-672.090	2152.534	-2434.983	-2416.751	-2685.884
attention				0.027***	
elaboration					0.117***
Adjust-R <sup>2</sup>	0.109	0.183	0.278	0.294	0.343
F-value	6.321***	10.707***	17.659***	16.763***	20.786***

Then, we use the Bootstrap method for further verification, and the results are shown in Table 4. It can be seen from the table that the direct effect interval of official microblog activity is [44.434, 98.443], and the indirect effect interval through elaboration is [5.960, 51.729], which both do not include 0. Therefore, the official microblog activity has a significant direct and indirect effect on box office, that is, elaboration plays a partial mediating role between the official microblog activity and box office. H1 is supported. For third-party media mention, the direct effect interval of is [1407.488, 2557.965], and the indirect effect intervals through attention and elaboration are [-13.548, 684.491] and [72.190, 1013.375], respectively. Because the first interval of indirect effect contains 0, further Sobel test is needed. The result is  $p < 0.05$ , so the indirect effect through attention is supported. Therefore, third-party media mention has a significant direct and indirect impact on box office, that is, attention and elaboration both play a partial mediation role between the third-party media mention and the box office. H2.1 and H2.2 are supported.

**Table 4:** Mediation effect test of official microblog and third-party media

	official	third-party
Direct Effect	71.439***	1982.727***
SE	13.722	292.290
T	5.206	6.783
P	0.000	0.000
LLCI	44.434	1407.488
ULCI	98.443	2557.965
Indirect Effect (through attention)	8.503	146.559**
Boot SE	8.478	135.337
BootLLCI	-5.900	-13.548
BootULCI	28.102	684.491
Sobel test-Z	1.514	2.029
Sobel test-p	0.129	0.043
Indirect Effect (through elaboration)	19.329***	337.740***
Boot SE	13.231	250.987
BootLLCI	5.960	72.190
BootULCI	51.729	1013.375

In order to verify the interaction effect of different channels in social media marketing, we introduce the cross-term of official microblog activity and third-party media mention in the basic model (see Model 5-2 in Table 5). The results show that official microblog activity and third-party mention both have significant effect on box office. After adding the cross-term of official microblog activity and third-party media mention, the coefficient is significantly positive ( $\beta = 8.628$ ,  $p < 0.01$ ) and adjust  $R^2$  increases 0.12, which means for movies with higher official microblog activity, the mention of third-party media has a stronger impact on the box office. H3 is supported.

**Table 5:** The interaction effect of official microblog and third-party media

Variable	Model 5-1	Model 5-2
Duration	210.071	265.317
Sequel	27,643.811***	30,060.922***
Holiday	10,943.653*	9931.984*
3d	2966.862	94.858
Import	262.490	-416.794
Genre	-1461.574	-1257.297
Official	63.872***	9.769
Thirdparty	1817.810***	-1556.181***
official* thirdparty		8.628***
Adjust-R <sup>2</sup>	0.338	0.460

### 5.3 Study 2: social media marketing events

Study2 investigates different effect paths of different marketing events. The research methods used are the same with Study1. There are five types of marketing events, and we explore the path of each type.

In the analysis of the effect path of disseminating knowledge and making announcement, we first use elaboration as the dependent variable, and find that knowledge ( $\beta = 1803.418$ ,  $p < 0.01$ ) and announcement ( $\beta = 663.449$ ,  $p < 0.01$ ) both have positive effect on elaboration (see Models 6-1 and 6-4 in Table 6). Then, the box office is used as the dependent variable. It is found that knowledge ( $\beta = 1321.220$ ,  $p < 0.01$ ) and announcement ( $\beta = 702.925$ ,  $p < 0.01$ ) both have a significant positive impact on box office (see Models 6-2 and 6-5). After adding elaboration as the mediation variable, knowledge ( $\beta = 1135.788$ ,  $p < 0.01$ ) and elaboration ( $\beta = 0.103$ ,  $p < 0.01$ ), as well as announcement ( $\beta = 629.240$ ,  $p < 0.01$ ) and elaboration ( $\beta = 0.111$ ,  $p < 0.01$ ), also have significant positive effects on box office simultaneously. Therefore, we can think that elaboration plays a partial mediation role in the relationship between knowledge or announcement and box office. H4 and H5 have obtained preliminary support.

**Table 6:** Effect paths of disseminating knowledge and making announcement

Marketing event	Disseminating knowledge			Making announcement		
	elaboration	boxoffice		elaboration	boxoffice	
	Model 6-1	Model 6-2	Model 6-3	Model 6-4	Model 6-5	Model 6-6
knowledge	1803.418***	1321.220***	1135.788**			
announcement			*	663.449***	702.925***	629.240**
duration	437.145	378.580**	333.632**	697.273	500.063***	422.621**
sequel	94,416.641*	25,761.027*	16,052.860	96,251.961*	24,819.328*	14,129.174
holiday	50,082.902*	14,590.235*	9440.579	57,596.098*	17,629.653*	11,232.784

	**	*		**	**	*
3d	9749.162	-816.610	-1819.045	22,087.674	7755.019	5301.868
import	-8598.250	6488.175	7372.269	-17,109.181	5246.811	7147.030
genre	2244.886	-2367.752	-2598.577	2424.952	-2084.325	-2353.650
elaboratio			0.103***			0.111***
n						
Adjust-R <sup>2</sup>	0.220	0.336	0.385	0.174	0.358	0.418
F-value	11.899***	22.874***	24.706***	10.135***	25.165***	28.225***

In the analysis of the influence path of sales, topic and interaction, attention, and elaboration are used as the dependent variable first (see Table 7). For simplification, we abbreviate the coefficients of control variables. We find that sales, topic and interaction all have a positive effect on attention and elaboration. Then, box office is used as the dependent variable. Sales, topic and interaction, as well as the mediation variable, attention and elaboration, all have positive effects on box office. Therefore, we can consider that attention and elaboration both play a partial mediation role. H6.1, H6.2, H7.1, H7.2, H8.1 and H8.2 have obtained preliminary support.

**Table 7:** Effect paths of sales, topic and interaction

Dependent variable	attention	elaboration	boxoffice		
sales	1488.757**	847.542***	699.342***		
topic	500.471***	244.560***		122.263***	
interaction	726.486***	268.437***			165.418***
attention			0.034***	0.018*	0.021**
elaboration			0.124***	0.082***	0.098***

Then, we use the Bootstrap method for further verification, and the results are shown in Table 8. It can be seen from the table that the direct effect intervals of knowledge, announcement, sales, topic, and interaction all do not include 0. Therefore, these five marketing events have a significant direct impact on box office. For knowledge and announcement, the indirect effect through attention is not significant. Therefore, only elaboration plays a partial mediation role between knowledge, announcement, and box office. For sales, topic, and interaction, the indirect effect through attention and elaboration are all significant, that is, attention and elaboration both play a partial mediation role. H6.1–H8.2 are supported.

**Table 8:** Mediation effect analysis of marketing events

	knowledge	announce	sales	topic	interaction
Direct Effect	1266.764***	669.816***	699.342***	129.818***	165.418***
SE	154.231	71.770	107.416	20.762	19.920
t	8.213	9.333	6.511	6.253	8.304
p	0.000	0.000	0.000	0.000	0.000
LLCI	963.232	528.570	487.943	88.969	126.215

ULCI	1570.297	811.063	910.741	170.667	204.621
Indirect Effect (through attention)	54.456	33.109	29.599***	13.318***	16.776**
					(Sobel test-p<0.05)
Boot SE	100.063	35.334	33.713	9.503	14.338
BootLLCI	-159.684	-5.913	0.164	1.828	-7.183
BootULCI	240.476	129.700	138.354	39.639	50.557
Indirect Effect (through elaboration)	185.432***	73.686***	105.085***	35.403***	26.253***
Boot SE	143.347	53.722	102.197	18.787	17.437
BootLLCI	45.301	15.524	18.533	12.310	7.931
BootULCI	538.457	199.178	360.529	79.857	69.054

#### 5.4 Study 3: relationship between marketing channels and events

In order to further explore the relationship between the two models in Figures 1 and 2, we conduct Study 3. First, we divide marketing events into two categories, one related to movie contents and the other related to movie surrounding information, as described before. After that, we mix all the microblog posts collected from different marketing channels and marketing events into four categories: official microblogs related to movie contents, official microblogs related to movie surrounding information, third-party media microblogs related to movie contents, and third-party media microblogs related to movie surrounding information, and these four categories as well as two mediation variables are incorporated into the regression model of movie box office (see Model 9-2 in Table 9). The results show that marketing information derived from official media channel, regardless of the types of marketing events, can have a significant positive impact on movie box office. Among the marketing information derived from third-party media channel, only marketing events related to movie surrounding information can promote box office, while those related to movie contents have no significant impact. In addition, in the integrated model, only the coefficient of elaboration is significant and that of attention is not significant, further confirming the assumption we have drawn before that not all marketing information first arouses consumers' attention. It can also be seen from the results that marketing channels and marketing events are not two independent aspects. Official microblog channel acts as a central path variable, thus publishing information on two types of marketing events is beneficial to promote box office. However, third-party media influences purchase behavior through peripheral route, so that only the release of the surrounding information of the movie, which also serves as a peripheral variable, can promote the box office.

**Table 9:** Integrated model of marketing channels and events

Variable	Model 9-1	Model 9-2
official_content	308.381***	321.212***
official_surround	36.901***	28.825**
thirdparty_content	-606.449	-445.077
thirdparty_surround	1520.222***	1340.269***

attention		-0.006
elaboration		0.070***
duration	140.140	135.827
sequel	23,350.585***	17,719.062**
holiday	8152.692	5140.621
3d	1057.198	695.869
import	8558.560	9188.308*
genre	-1519.895	-1812.971
Adjust-R <sup>2</sup>	0.484	0.502

### 5.5 Study 4: interaction effect of movie attributes

In Study 4, we investigate the interaction effect between movie attributes and marketing intensity. Here, marketing intensity is measured by the level of official microblog activity and third-party mention, respectively. The results are shown in Table 10. Model 10-1 which is the basic model and the different cross-terms are added in Models 10-2–10-4. It can be found that holiday schedule attribute and sequel attribute both have a positive interaction effect with marketing intensity. Although the interaction effect of import attribute and official microblog activity is not significant, import attribute has a negative interaction effect with third-party mention. On the whole, H9 and H10 are supported.

**Table 10:** Interaction effect of movie attributes and marketing intensity

Variable	Model 10-1	Model 10-2	Model 10-3	Model 10-4
duration	210.071	213.370	150.467	125.806
sequel	27,643.811***	30,111.381***	-17,106.080	31,901.914***
holiday	10,943.653*	—	11,757.694*	9424.299
		35,551.353***		
3d	2966.862	3257.986	3092.805	6297.330
import	262.490	-2101.465	-931.570	15,455.615*
genre	-1461.574	-683.457	-1753.413	-717.185
official	63.872***	30.600**	51.343***	60.608***
thirdparty	1817.810***	804.084**	1628.226***	2888.977***
official*holiday		100.458***		
thirdparty* holiday		1683.527***		
official*sequel			80.612***	
thirdparty* sequel			1768.680**	
official*import				15.245
thirdparty*import				-2806.836***
Adjust-R <sup>2</sup>	0.338	0.412	0.367	0.392

## 6 Discussion

Table 11 summarizes the major findings of the two studies. First, official microblog activity and third-party mention do increase the purchase intent, but their effect routes are different. Official microblog promotes purchase intent by directly

changing the audience's attitude towards the movie, while third-party promotes purchase intent by arousing attention and a positive attitude. The more active the official microblog, the more detailed the movie-related information can be introduced to the audience, the easier it is to change the audience's attitude, and the higher the box office; the more the third-party media mentions, the easier it is to inadvertently attract the audience's attention, and then to change the audience attitude and increase the box office. The findings fit well with the ELM framework that official microblog activity is the central variable and third-party mention is the peripheral variable in persuading the audience to buy a ticket.

**Table 11: Summary of findings**

Hypotheses	Study1	Study2	Study 3
H1: Higher level of movie official microblog activity leads to higher movie box office through improving audience's attitude towards the movie.	Supported		
H2.1: Higher level of third-party mention leads to higher movie box office through attracting audience's attention towards the movie.	Supported		
H2.2: Higher level of third-party mention leads to higher movie box office through improving audience's attitude towards the movie.	Supported		
H3. The difference in the purchase intent between high-level and low-level movie official microblog activity will be larger for movie third-party media mentions frequently than for movie third-party media mentions rarely.	Supported		
H4: Disseminating knowledge leads to higher movie box office through improving audience's attitude towards the movie.		Supported	
H5: Making announcement leads to higher movie box office through improving audience's attitude towards the movie.		Supported	
H6.1: Sales leads to higher movie box office through attracting audience's attention towards the movie.		Supported	
H6.2: Sales leads to higher movie box office through improving audience's attitude towards the movie.		Supported	
H7.1: Topic leads to higher movie box office through attracting audience's attention towards the movie.		Supported	
H7.2: Topic leads to higher movie box office through improving audience's attitude towards the movie.		Supported	
H8.1: Interaction leads to higher movie box office through attracting audience's attention towards the movie.		Supported	
H8.2: Interaction leads to higher movie box office through improving audience's attitude towards the movie.		Supported	
H9.1: There is a positive interaction effect between sequel attribute and official microblog activity			Supported
H10.1: There is a positive interaction effect between sequel attribute and third-party mention.			Supported

H9.2: There is a negative interaction effect between import attribute and official microblog activity.	Not Supported
H10.2: There is negative interaction effect between sequel attribute and third-party mention.	Supported
H9.3: There is a positive interaction effect between holiday schedule attribute and official microblog activity.	Supported
H10.3: There is a positive interaction effect between holiday schedule attribute and third-party mention.	Supported

**Comment [A3]:** [AQ: Please check and confirm whether "sH9.2" can be changed to "H9.2".]

**Comment [A4]:** Confirm.

Second, third-party mention has a positive interaction effect with official microblog activity. It is consistent with the conclusion that peripheral persuasion variables may affect the extent or direction of message processing [21]. In other words, third-party mention acts as a peripheral variable and interacts with the official microblog activity to enhance the processing of content. This is because, when the official microblog releases little information about the movie, the audience will be less interested in this movie and the evaluation or introduction posted by third-party media will be less helpful in persuasion. However, if the movie official microblog keeps a high level of activity, the audience will know more about the movie through the introduction or display posted by the official microblog. After that, the high level of third-party mention becomes relevant and helpful in catching the attention of audience and motivating them to purchase a ticket. As a result, the audience will have a more polarized purchase behavior between high-level and low-level movie official microblog activity when third-party microblog updates information about the movie frequently than otherwise.

Third, different contents of social media marketing promote purchase intent through different routes. To be specific, disseminating knowledge and making announcement focus on the introduction of the main plots, actors, premiere time and so on, and affect purchase intent through the central route. While sales, initiating a topic and interaction, which are not directly relevant to the movie content but are mainly about the surrounding information of the movie, do not change the perceived quality of the movie content itself but affect purchase intent through the peripheral route. This is because, when dealing with the knowledge or announce such as concrete plots or actor introduction of the movie, the audience has the motivation to process the information deeply since it is related to personal purchase needs. Therefore, the persuasive effect of the knowledge and announcement on the audience belongs to the central route. However, sales, initiating a topic and interaction capture the audience's attention by reflecting the movie's popularity, heat and interaction with the audience. The published contents do not require the audience to have too much cognitive effort, so they influence the purchase intent through the peripheral route.

Fourth, as hypothesized, movie attributes interact with marketing intensity in affecting purchase intent. Under the same marketing intensity, the marketing effect of domestic sequel movies released on popular holidays is better. This is because during the popular holiday schedule, consumers' demand and willingness of watching movies has increased. However, other movies released in the same period will also

increase and competition will become more intense [55, 73]. Hence, social media marketing of movies released in popular festivals can help the movie to enhance competitiveness, catch more attention and get higher box office. Due to the influence of parent film extension and the recognition of the domestic cultural value of sequel films and domestic films, under the same marketing intensity, the marketing effect is also better than that of non-sequel films and imported films. The reason why H9.2 (i.e., the interaction effect of official microblog activity and imported attribute) is not supported may be related to the official microblog activity characteristics of imported movies. Compared with domestic movies, the official microblog of imported movies is much less active. Among the domestic sample movies, the average number of official microblog posts is 350, while among the imported sample movies, the average number of official microblog posts is 161. Since distributors and operators of imported movies are less familiar with the domestic movie market, they spend less energy on social media marketing, resulting in lower activity on official microblog account. Since the official microblog activity of imported movies is generally low, the imported attribute cannot strengthen or weaken the influence of the official microblog activity on the movie box office, so there is no significant interaction effect between the official microblog activity and the imported attribute. In addition, the average third-party media mention of domestic movies is 6.6, and that of imported movies is 6.5. There is no significant difference between the two. This is because although the activity of imported movies on social media platforms in the domestic market is not high, the attention of third-party media to imported movies has not decreased. Therefore, there is a significant interaction effect between third-party media mention and imported attribute, which further explains why the interaction effect between official microblog activity and imported attribute is not significant.

Our research findings are not limited to the movie industry, but can be extended to the entire field of experience products. For experiential products, it is usually relatively difficult to obtain product quality information and the search cost is high. They generally require personal experience to have a clear understanding of the products [74]. Ackerberg [75] proposed that products with higher quality information search costs need to invest more in advertising to provide consumers with clues and signals about product quality. The characteristics of experiential products determine that they are highly dependent on product marketing activities. They need to attract consumers' attention through marketing and promote consumers' product experience. Therefore, experiential products are applicable for the information processing model and ELM perspective, as well as the conclusions drawn in this study.

There are three main reasons why movie is suitable as our research object. First, movies are typical experiential products, and it is difficult to obtain accurate product quality information before consumption; second, movies have a strong dependence on the Internet and require the communication function of social media to gain public attention; and, third, the audience of movies is mainly young people, who happen to be most active participants on social media. Therefore, we only choose the movie industry as a representative of experiential products for empirical analysis, and the obtained conclusions are applicable not only to the movie industry, but also to the

entire field of experiential products.

### 6.1 Theoretical contribution

This research contributes to the existing literature in the following two ways. First, the current work represents a pioneering effort to empirically study the effect of social media marketing on purchase intent. By distinguishing the channels and events of social media marketing, we find that different marketing channels and events have different ways of affecting purchase intention. In addition, by delineating the information processing of users into different stages, the current work is able to reveal the differentiating role of each variable and its effect on the attention, elaboration, and decision stages. It is found that marketing from official media channel and about knowledge and announcement contents tend to improve audience's attitudes towards the movie directly, while marketing from third-party media and about sales, topics and interaction are efficient to attract attention first and change attitude afterwards. This result is complementary to the finding that both brand-owned media and third-party media can promote product sales[16]. It only pays attention to the information sources of social media marketing, while our research further expands the focus to the social media marketing events, and explores how marketing channels and events influence each other to achieve the best marketing effect. A substantial proportion of marketers perceive that social media contributes almost nothing to company performance [76]. Our research suggests that it is critical to deploy the right social media strategy to affect purchase intent. Thus, our study assists marketers in crafting more effective social media marketing strategy.

Second, we make detailed exposition of the ELM and illustrate its application to the context of movie box office. Although a limited number of prior ELM-based studies had applied the theory within other contexts such as decision making or IT acceptance [24], this study is the few to apply this theory to the movie industry. Indeed, ELM is a process theory that has the potential of opening the black box of the influence process as it unfolds over time, in contrast to most prior theories that were primarily factors-based [26]. We make reference to the ELM to explain the effects of different variables by segmenting them through different routes. Our findings on elaboration indicate that social media marketing influences audience in two major ways. On one hand, it affects elaboration and decision making through the central route of persuasion by offering information about the introduction of movie content, which is directly relevant to the purchase need, such as the information from official microblog, trials, posts, press conference, and so on. On the other hand, information from third-party media, sales, topics and interaction, which are not directly related to the content of the movie but represent the popularity of the movie, can invoke heuristic rules of users. This is the peripheral route of persuasion. The application of the ELM in the context of movie box office has improved its ability to explain in multiple fields, which not only enriches the core content of the theory itself, but also expands the theoretical basis of box office research.

### 6.2 Practical implications

The social media has become an essential platform for organizing a wide range

of activities along the value chain of a firm, from procurement to distribution, and from promotion to customer support [24]. The conclusions of this study provide some inspiration and suggestions for enterprises to launch social media marketing.

First, our results show that firms' online social media activities help increase purchase intent and contribute to box office performance finally by attracting audience's attention and improving the attitudes, which indicates that the consumer response caused by social media marketing has a significant promotion effect on product sales. In practical applications, companies should pay attention to these consumer responses, such as followers, likes, comments, reposts, and so on. Companies can organize activities such as rewards and lottery for fans to encourage attention, while avoiding behaviors that cause consumers to cancel their following and support. In addition, companies can compare and analyze microblogs with low and high consumer responses to find optimal promoting method.

Second, although our findings suggest a positive effect of social media marketing on purchase intent, managers must be cautious and not interpret this result to imply that simply creating, say, a Facebook or Weibo page and inviting customers to become fans will lead to positive customer outcomes. They must carefully manage and devise opportunities to create and nurture relationships with customers through the social medium [30]. For example, maintaining a high level of update frequency, keeping regular interaction with fans, providing user-friendly social media site interface, and encouraging member contributions can create interactive communication that can enhance firm equity [77].

Third, the influence paths of the brand's own media and third-party media are not mutually exclusive, and both can increase product sales. In marketing practice, companies should first manage their own official social media account and increase the frequency of update in order to keep a high level of activity to maintain a good image, which is helpful in changing consumers' attitudes and stimulating elaboration. The contents of the brand's own media should mostly include product advantages, features, performance, and other introductions about product attributes, provide consumers with sufficient central clues to judge the quality of their arguments, and promote the generation of consumer purchasing behavior. In addition, companies should also cooperate with third-party media and jointly conduct product promotions to get higher product attention and better product attitude. The content of the third-party media should focus more on product evaluation information such as spokespersons and Internet word-of-mouth, so as to encourage consumers to project their love of spokespersons and information sources to the products, thereby promoting purchase.

Fourth, while it is true that ongoing site maintenance and promotional material can help boost the site's popularity [78], our findings indicate that constant posting does not necessarily attract the attention of the audience. Social media makes information readily accessible, and it also provides users with too many options. Facing hundreds or even thousands of messages per day, social media users have become very selective about how to spend their time [20]. Sometimes what matters more to organizational accounts is the quality, not quantity, of their posts. Thus,

companies should be cautious about the marketing events of their accounts. To publicize an event on social media, companies should avoid posting the same messages repeatedly because it may simply annoy audience. Instead, they should apply a diverse range of messaging styles, mixing disseminating knowledge, such as trials or posters, making announcements like press conference, initiating a discussion topic, and sales information. In addition, creating meaningful two-way interaction and dialogue with audiences is also an efficient way in social media marketing through attracting more attention from audience and increasing their purchase intent afterwards. Another implication is that when creating marketing events such as releasing sales information and initiating a topic, organizers should catch the audience's attention first. For example, they can post information about the box office in a more eye-catching and vivid way, or frequently grab topics related to movies or actors to stimulate heated discussions among audience. These measures can help the movie to attract the attention of the audience, then promote the audience's positive attitude towards the movie and finally increase the purchase intent.

Last but not least, due to the interactive effect between movie attributes and social media marketing, movie investors and distributors should consider the product attributes of movies when conducting social media marketing. If the released movie is a sequel movie, due to the familiarity and trust in the parent movie, the audience may project the love of the parent movie on the sequel movie, so the sequel movie will have higher box office than the non-sequel movie. However, the box office of sequel movie declines faster than that of the non-sequel movie [53]. Therefore, sequel movies need to strengthen marketing to maintain box office growth. For imported movies, the box office may be higher, but due to cultural discounts, the import attribute will weaken the impact of marketing intensity on the movie box office, and social media marketing effectiveness for domestic movies is better. In addition, because the audience has more time and a stronger desire to watch movies in holidays, the holiday schedule may contribute to a higher box office. However, the increase in the number of movies released leads to fierce competition, and social media marketing is more effective at this time. This article provides film practitioners with suggestions for adjusting social media marketing strategies according to different types of movies, which is conducive to more efficient social media marketing.

### 6.3 Limitations and future works

There are a number of limitations to these studies that should be taken into account. First, given the limited scope of the current research, we have focused primarily on variables that were expected to have a positive impact on elaboration and purchase intent. However, there may be negative influences of social media contents, such as negative evaluation or bad news about the actors. In the future, these negative variables can be considered in the research model to investigate and compare their influences with those of the current positive variables.

Second, this study has a narrow focus on movie Weibo accounts, thus the findings have implications for organizational Weibo users in general. However, there are a wide range of social media platforms, such as Wechat or Douban. Wechat is the most widely used mobile social media platform in China and Douban is one of the

largest interest-oriented communities for book, music, and movie reviews [12]. Future works can extend the current research to other social media platforms to explore the differences and similarities of marketing effectiveness across various platforms.

Third, this study only counts the number of people who have the willingness to watch the movie released on the Maoyan movie platform and regards it as a measurement of elaboration. However, not all audiences express their willingness to watch movies through the Maoyan platform. Future researchers can consider other indicators to measure attitudes towards the movie or elaboration. Future works can also distinguish consumers by region, age, gender, occupation, and other attributes to investigate how social media marketing effectiveness change for different consumer groups.

Finally, in the econometric model constructed in this paper, because the difficulties in data acquisition and collection, there are still some control variables that have not been involved, such as movie cost, celebrity historical performance, publisher variables, awards, and so on. Future research may need to include more control variables that affect product sales.

## 7 Conclusion

In summary, the current work has investigated the effects of different channels and events in social media marketing on movie box office. Using the ELM as the theoretical frame, social media marketing is modeled to affect audience's information processing and purchase intent through two set of variables: (1) the official microblog activity, disseminating knowledge and making announcement and (2) the third-party media mention, sales, initiating a topic and interaction. The first set focuses on the introduction and display of the movie contents, while the second set cares about the review or some surrounding information of the movie. The use of the ELM as a theoretical frame enables us to put the comparison of variables into perspective and to identify more clearly the role each variable plays in the processing of persuasion messages. This work represents a first step towards understanding how social media marketing impacts audience's elaboration and purchase intent. It also sheds light on the effectiveness and mechanism of social media marketing in offering marketing channels and events to audience. An improved understanding of how social media marketing affects the information processing of audience will be critical to movie firms to stimulate more optimal marketing activities and to foster better relationships with the audience.

### Author Statement:

Each of the coauthors has seen and agrees with each of the changes made to this manuscript in the revision and to the way his name is listed.

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