

# Investigation of the Influence of Social Networks on the E-commerce Live Streaming Industry from Consumers' and Firms' Points of View

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**Abstract.** In this largely internet-based era, it is found that utilizing social media as a transaction platform is an increasingly popular trend for both customers and firms. Even though they make use of social media for different purposes, its commonly recognized convenience, which allows a wider and faster information dissemination process via social networks, has great positive impacts on the streaming e-commerce industry. This paper uses different models and theories to explore the significance of social networking to both customers and firms. However, there are some drawbacks associated with such wide and quick dissemination of information because of the inability to distinguish between correct and false information and potential rumors. Then, suggestions will be given to both buyers and sellers of the products sold in live-streaming chatrooms to maximize the use of social media and social networking. This paper will mainly study the effects of social networks on electronic word-of-mouth and incentive mechanisms.

**Keywords:** Information Dissemination; Social Network, Live Streaming; Electronic Word-of-Mouth; Incentive Mechanism.

## 1. Introduction

In the age of the Internet, many people have turned to social media, and there are a multitude of newly emerging industries and job opportunities that are tightly linked with social media and the Internet. Social media also demonstrates great contributions to the evolution of trade around the globe, and people have witnessed an explosive transformation of the global economy with the rise of the e-commerce industry, which has greatly changed the way that consumers conduct commerce [1]. Unlike traditional ways of trading in the 1970s, e-commerce allows customers to trade on the Internet through different platforms, such as mobile applications and websites. In the case of China, thanks to the powerful and extremely influential local e-commerce platforms, such as Taobao and Douyin, and the wide recognition of e-commerce among citizens, in the belief that this is the easiest way to consume goods, China is now the undisputed leader in the field of e-commerce.

Live streaming e-commerce is a strategy of promoting goods via online or live videos, where retailers demonstrate the products and answer audiences' questions. Usually, these take place on social media platforms or e-commerce websites [2]. The beginning of COVID-19 stimulated the rise of live-streaming e-commerce because as people were isolated in their homes and could not access offline retail stores, live-streaming enabled them to have a big picture of the products and provided them opportunities to ask questions about the products. From the firm's point of view, live-streaming also has effects on establishing customer loyalty. Many electrical retailers also invite internal celebrities or influencers to their live-streaming chat rooms to promote their products.

The main drawback for customers who purchase products online is the lack of tangibility. Customers cannot feel, touch, and try products before they purchase them. Hence, product reviews and the evaluation of the products by other customers, as discussed among users and potential buyers, play a vital role in helping potential customers judge whether the product is worth money or not. Before the start of the live streaming, news, and information regarding the live streaming & chatroom should reach as many people as possible in order to maximize the customers & viewer base. Even during live streaming, influencers can also adopt incentive mechanisms by releasing rewards to

buyers or people who forward the news live streaming to other people outside the live streaming, which involves the usage of social networks.

Hence, overall, this topic is considered to be significant because it is commonly believed that social media has formed a big social network among each netizen, and information and news in this network are disseminated at a relatively rapid pace. Therefore, the ways in which the e-commerce live streaming industry best uses this social network to spread the news of live streaming is worth investigating.

Generally, the paper will discuss the usage of social networks in live streaming e-commerce from two core aspects: online product reviews by customers through social networks and information dissemination by using rewards incentive mechanisms.

## **2. Background Information**

China is the top country when it comes to the ranking for the revenue earned from e-commerce by country. Over and above that, when taking Taobao as an example, as of December 11, 2023, Taobao gathered over 892 million monthly active users [3]. With the realization of the popularity of e-commerce in China, many independent retailers are registering on different e-commerce platforms and finding ways to promote their products, including the live streaming process.

The live-streaming e-commerce business is predicted to reach 35 billion by 2024, and live-commerce sales may make up 20% of total e-commerce by 2026. Due to the significance of such live-streaming e-commerce, which creates interaction opportunities with the hosts, transactions between firms and customers via live-streaming studios are now a global trend.

## **3. The Role of Social Networks in the Live Streaming Industry**

Over the last decades, social media has evolved to become an essential communication tool among internet users, including intended buyers and firms. It has formed a large social network connecting all different parties, regardless of their locations. Such social networks play an important role in disseminating and receiving information or knowledge. Newly developed internet approaches and applications like Instagram and Facebook allow people within that network to convey information at a rapid pace. The Internet's function has changed from a single information-transfer platform to a collection of platforms for social involvement facilitated by technology [4].

### **3.1. Product Review**

#### **3.1.1 Reasons Analysis of Buyers Screen Consumer Review**

Nowadays, before potential consumers make decisions on whether to consume a specific product or not, it is common for them to screen over consumers' reviews of products and consumer services. Through this process, they will access information that they felt uncertain about before. This phenomenon mainly resulted from adverse selection.

Adverse selection refers to situations where one party in the transaction has more information about the product being sold than the other party. In this case, sellers of the product have more information about the quality of the products that is not available to buyers. When this happens, consumers may easily purchase products that are not worth the money or are unsafe because products to be purchased are intangible to buyers. Hence, in an unregulated market where the government implements few laws and rules on the quality of products in e-commerce platforms or industries, consumers can eliminate the information gap by screening the product from reliable used dealers or users from the Internet, or they can informally ask their friends and families. When the majority of the information gained by that person is negative, then that person does not tend to consume that product, and vice versa.

Even though screening is hard to obtain systematic information or provide complete information that matches the information available on the seller's side, the process of screening the product and

informally asking their friends within their social network is essential for consumers to make decisions.

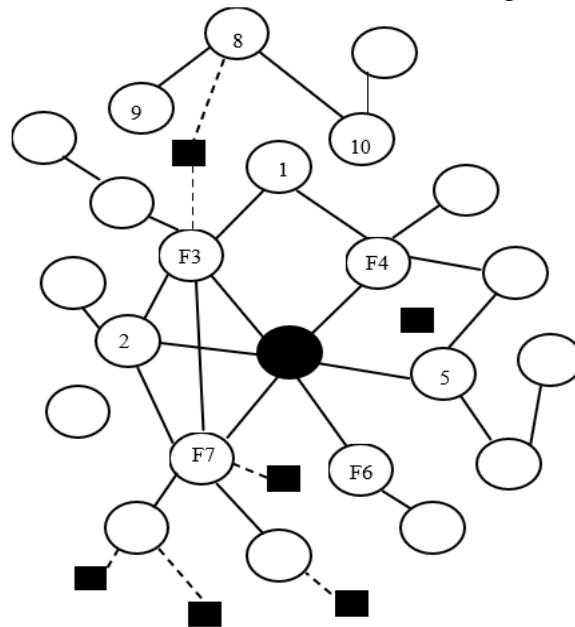
### 3.1.2 Reasons Analysis of Buyers Screen Consumer Review

#### 1. An emerging trend for Product Review via electronic word-of-mouth

Before the rapid growth of technology, customers sought word-of-mouth from friends and families, which was restricted by their locations. By identifying the effectiveness of information delivery and the wide use of social media as a communication tool, the Internet has become a popular channel for consumers to share their opinions of products, businesses, and brands, which is known as electronic word-of-mouth (eWOM) [5]. eWOM allows wider usage of social networks because consumers have chances to communicate and connect with people they are not close to. This is especially the case for the e-commerce industry and live-streaming sales industry because potential consumers find it difficult to gain full knowledge of the products they intend to buy, which makes them unable to judge the products and make purchasing behaviors. Therefore, in addition to information provided by businesses, information in the form of online consumer reviews, consumer perceptions, and preferences via social networks on social media can also influence consumers on their purchasing decisions.

Online consumer review can be defined as a consumer’s opinions and/or experience of a product, service, or business. Reviews can be found on specialist websites and the websites of many retailers or retail platforms [6]. Statistics have shown that over 89% of consumers make an effort to read reviews before making purchasing decisions. With this, around 49% of consumers trust online reviews as personal recommendations [7]. Consumers can make use of this platform to exchange information at a lower cost rate, which is mainly due to the utilization of social networking. The concept of social network refers to a set of groups of individuals and social interactive ties between them, such as Facebook.

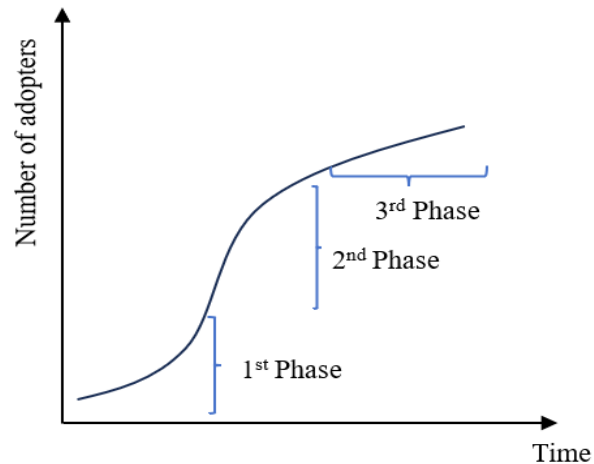
#### 2. Social network-enabled eWOM environment in live streaming e-commerce



**Fig. 1** General network view of an SN-enabled eWOM environment (moderated) [8]

According to Figure 1, in this simple social network linking a specific user with his interactive internet friends and strangers together, each user can gain information about the products consumed by people within that network. For example, when node 3 and node 8 are the first consumers in this network learning about a new product sold in a live streaming studio, they may disseminate the information about this product to their friends via social ties in this network, such as nodes 2, 7, and 9. Then, those who decide to purchase the products with node 3 and node 8 in the live streaming

studio are known as early adopters of the new products in this social network. This stage can be seen as the first place in the S-curve theory, as shown in Figure 2 [9].



**Fig. 2** S-curve model: Product Application [9]

After consuming the products and using them, the early adopters may share their experiences and reviews on social media so that not only will their online friends but also the social media users who browse short-form videos or posts on social media. With this, the information of the product reviews has been delivered and received through the social ties within this social network. Such information is especially important when that specific product can only be found in that live-streaming studio. When early adopters give positive reviews and feedback on this product, other people are more likely to buy the same product from the same business. Hence, the number of adopters in Figure 3 increases sharply. However, the early adopters publish negative reviews on social media, and the reviews are browsed by other internet users who initially intend to purchase the product. Since that influences them, they are less likely to purchase the new products. When this happens, the slope of the diagram in Figure 2 will not increase as sharply as in the previous case.

The information dissemination process among internet users within a social network is significant for the live-streaming industry. This is because live streaming studios are highly based on the use of social media and other applications, so the target customers should be Internet users.

While seeking opinions regarding a product, brand, or business, people can choose to look for opinions from either their friends and families or strangers. The model shown above is a general network view of an SN-enabled eWOM environment and can also be applied to James March's seminal work "Exploration and Exploitation" in 1991. Since March, exploration has been the process of making use of previously acquired knowledge, while exploitation is any action that allows the agents to find new features about the environment. In the case of SN-enabled eWOM, exploration refers to the process of exploitation involving seeking opinions authored by online friends. In turn, exploration involves seeking opinions from strangers [10].

Therefore, since many customers would like to choose to screen product reviews before making purchasing decisions, which is mainly done by eWOM in social media networks, information dissemination via social networks is highly influential in consumer behavior.

### 3.2. Promotional Strategies by Live Streaming E-commerce Firms on Social Media

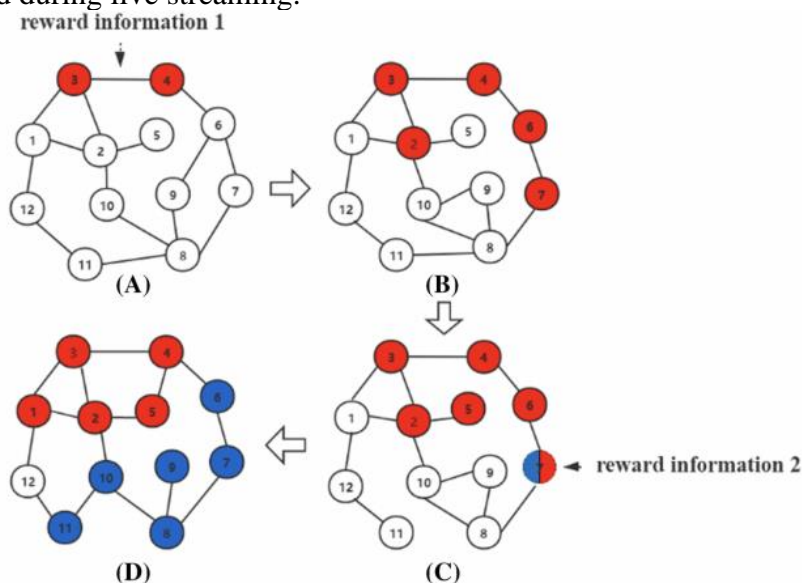
#### 3.2.1 Effects of Inviting celebrities to a live-streaming studio

Live streaming is one of the most popular approaches for firms to promote their products or brands. It happens when businesses utilize video content or live streaming on internet sites to sell products and services in real time [11]. A practical way for these firms to provide a better and more immersive experience is to invite internet celebrities, influencers, famous actors, or athletes as guests to promote the products or services being offered. Different from the traditional way of promotion, such invitations of renowned celebrities to live-streaming studios offer more interactive connections with

potential buyers and also attract his/her fans. This may positively affect the popularity and the sales revenue earned from the live-streaming studio.

### 3.2.2 The use of incentive mechanism

Live streaming firms should aim to spread the information about live streaming to as many people as possible because there will still be few people in the live streaming studio if the news informs many potential customers. Hence, information dissemination from firms to customers through social networks is essential. When customers think that their friends are interested in live streaming, or when they receive rewards from the firms, they will be incentivized to share the live streaming with their friends or forward it on social media. Generally, there are two stages in the information dissemination process: before and during live streaming.



**Fig. 3** Schematic diagram of live streaming information dissemination model [12]

According to Figure 3, in this simple social network, the red nodes are people who receive the information before the live streaming and the information during the live streaming. People assume that Node 3 and Node 4 are the first people to get live-streaming information from official websites or news. Live streaming firms may choose to provide an incentive system to those who forward the information. Node 3 and Node 4 are motivated to do so when they hope to get the reward. They may choose to share the information with their neighbor nodes; in this case, they are Node 2 and Node 6. This process of information dissemination continues to happen as it will eventually reach a multitude of customers.

Whether customers (nodes) are interested in and, therefore, forward the information or not also depends on the effects of herding. Herding is defined as the phenomenon of individuals deciding to follow others and imitating group behaviors rather than deciding independently and atomistically on the basis of their own private information [13]. Consequently, herding plays a vital role in customers' purchasing decisions. For example, in Figure 4, if many friends are linking with nodes 2 and 6 within a social network actively discussing one live streaming or some products sold during that live streaming, or the reputation of their neighbor nodes is quite high, then the probability for them to receive and further share the information also remains high. Defined by another journal article, the reputation of neighbors refers to the desire of a node for a better reputational environment, and its value is between 0 and 1. The 0 value of the reputational environment means that the node does not really care about its reputation at all and randomly selects information to forward; and when it is 1, this means that it completely follows the maximum reputational principle. This will further accelerate the information dissemination process and get more customers to learn about such information.

Similarly, in steps (c) and (d), live-streaming companies can choose to release different incentive mechanisms for users inside the studio to forward information to people outside the studio. This has

also proven that at this second stage, the initial number of people in the live-streaming studio is also relatively important because the more people in the live-streaming studio, the more people outside the studio will gain information through each person's social edge.

That study also concludes that when the reputation environment of a social network is lower than 0.3, live streaming firms can adopt more incentive mechanisms because rewards have greater positive effects on people's purchasing decisions, while when it is more than 0.3, the high reputational environment weakens the effects of rewards so firms can schedule more interactive sessions with its customers. Therefore, firms should best utilize the social network and promote appropriate promotional strategies to maximize their sales revenue.

## **4. Suggestions**

### **4.1. For Live-streaming Firms**

It is highly recommended that live-streaming information be heavily promoted on social media or the Internet in order to make sure that the information can be delivered to a large range of people. Different strategies should be used under different circumstances. For example, suppose the target customers of products sold in the live-streaming chatroom are mainly women. In that case, the business can consider cooperating with apps and adopting filter bubble strategies. In this case, the information, including the time, avenue, and other detailed information, will be delivered to targeted women customers. This can be based on the characteristics of target buyers.

Moreover, besides the promotion of the live-streaming chatroom, firms may also consider advertising their brand or company name on social media because of the ease of reaching many people and the tightly linked social networks among them. People who receive the advertisement on social media or other apps will forward it to or discuss it with their friends or families who are also interested in the same content. Similarly, if the business is caught cheating customers by selling substandard products to customers, the railings and all sorts of slanders will be widely spread on social media. When this appears on the "Most-researched topics", other people will also access the negative information, which can negatively affect the firm's brand name and reputation. Therefore, social media can have negative impacts on firms as well when they do not perform well.

Furthermore, when promotional vouchers or discounts do not play a dominant role in whether audiences will forward the information of the live-streaming chatroom or not, this means that audiences are seeking non-financial incentives, such as interactive opportunities with the influencers. This helps build trust and rapport with fans, which encourages participation and opinion sharing. Therefore, the edge and the social link among live-streaming audiences and sellers will be further enhanced. When this happens, audiences will forward to more people via their social networks.

### **4.2. For Potential Buyers**

From potential buyers' points of view, due to the information gap between customers and sellers, it is highly recommended that customers research sellers' credibility, product quality, customer service attitude, etc. By screening product reviews, buyers may not be cheated by incorrect information from sellers. This will increase customers' welfare and benefits. These can be done both formally or informally. When customers make decisions on choosing one of the products among a few similar ones, they can formally do research online, gathering detailed information about each of them, such as price levels, durability, quality, etc., and make comparisons to choose the most ideal one for themselves.

Alternatively, they can informally ask their friends to access information or make connections and build a new social network on the Internet with people who purchased their product via the same live-streaming chatroom. Through the chatting process, buyers will be able to gain information and avoid making wrong decisions that are against their welfare and benefits.

## 5. Conclusion

### 5.1. Key Findings

This paper addresses the topic by using different models and theories to demonstrate the importance of social networks in live-streaming sales industries from firms' and customers' perspectives. For customers, eWOM in product reviews can provide more comprehensive knowledge of a product. Thanks to the wide spread of knowledge within a network, it has become the main approach to narrow down the information gap with firms. For live streaming firms, information dissemination is important for their promotional strategies, and they can utilize the incentive system to lure more people forward and share the information with people within their network at both stages.

### 5.2. Significance

This study is considered to be worth studying because social networks can affect businesses' marketing mix strategies and customer behaviors in many aspects. Not only do social media and social networks bring positive convenience to both parties, but it may also harm them. For example, rumors may cause the corporate brand name to collapse in a relatively short period due to the wide and quick spread of information via social networks on social media. Even though customers can access customer reviews through their social network, some dishonest buyers may give them non-real information as well. In this case, eWOM through social networks brings negative impacts instead.

### 5.3. Limitations and Further Study

There are some limitations to this study. For example, no primary research was used in this study. For further investigation to get direct, more qualitative and quantitative data, primary research should be carried out. For more accurate investigation, different models should also be used for analysis. In addition to that, only two stakeholders, customers, and firms, are studied. Other stakeholders, like the government and apps providing live-streaming services, may also be studied.

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