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-RESEARCH ARTICLE-

THE IMPACT OF ONLINE INFLUENCER LIVE STREAMING LIMITED-TIME PROMOTION ON AUDIENCE PURCHASE BEHAVIOR

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—Abstract—

The expansion of live streaming has been phenomenal. Live streaming is the practice of marketing and selling products by leveraging the popularity of social media influencers conducted by well-known and engaging Internet personalities as part of a limited-time promotion. There are advertisements, variety shows, and discussion rooms. Unimaginable quantities of merchandise are sold via live transmission. Consequently, it is essential to investigate the factors that have improved product information quality during live streams. Based on the hypothesis, we investigate the effect of online influncer live streaming limited-time promotions on purchasing behavior. The first stage is to gather the necessary information. In addition, normalization is utilized as a form of data preprocessing. Data analysis is performed using the analysis of variance (ANOVA) and the Chi-square test. This study is the primary method for investigating the phenomenon of online celebrities and the astronomical trade volumes generated by their limited-time live transmissions. Based on the findings of this study, it appears that customers are emotionally affected by the actions of online personalities, which increases their likelihood of purchasing the products recommended.

Keywords: Live streaming, social media, online influence, analysis of variance (ANOVA), Chi-square test

1. INTRODUCTION

As Internet usage has become more prevalent in China in recent years, its online citizens have increased dramatically. As China's economy has flourished in the past decade, Chinese s have demanded greater diversity and customization in their daily lives and purchasing habits. New business models like social media dissemination and online shopping continue to emerge. Large e-commerce websites frequently rush to implement

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live streaming systems that integrate sponsors and media to capture the base for product information quality quickly (L. M. Meng et al., 2021). Overall, little progress has been made in enhancing the virtual purchasing experience. Live-stream purchasing is an innovative form of e-commerce in which observers of live streams with a purchase intent can make purchases in real-time. In this context, live streaming product information quality refers to the items sold during the live stream, the host is the person promoting the materials, and live streaming purchase intention platforms refer to the mediums used to broadcast the live stream during a limited-time promotion. The revenue generated by live-streaming products may contribute to the success or failure of both the hosts and the broadcasting venue (X. Meng et al., 2022). In addition to the value of the goods themselves, the host's ability to direct sales, primarily reflected in their speech's effectiveness, is a significant factor in the quantity of merchandise sold during a limited-time live stream promotion.

Due to the rapid adoption of information technology-based equipment and system, the online business has experienced significant growth. The e-commerce market has attracted many s due to its ability to provide goods and services online, which is a simpler task than physical visits (Liu et al., 2020). Business-to-business (B2B) markets are considered significant channels for increasing online purchasing. However, several obstacles must be overcome to conduct online business and attract s via online platforms (Liu et al., 2020). Prior research has explored the phenomenon of repeat purchase intention and empirically examined the impact of business-to-business para-social relationships, which the entrepreneur endorser and online purchasing platforms predict. This means that the availability of online purchasing and the entrepreneur endorser influence the business relationship, increasing repeat purchases by altering the s' intentions. The study found that interactivity significantly affects the B2B relationship but that trustworthiness does not affect the B2B relationship. The study also found that service quality and product quality significantly affect the B2B social relationship, but that information quality does not affect the B2B relationship.

Positive emotions, engagement, and meaningfulness have been taken as dimensions of tourists' happiness, which links to the memorable tourism experience and relates to the place attachment. The place attachment is also influenced by the tourists' happiness, which leads to their intention to return. The study examined the relationship between tourist happiness and intention to return and health consciousness's moderating influence between place attachment and intent to return in Chinese markets. (Peng et al., 2023) reported that the contentment of a tourist influences the intention to revisit a specific location and also affects place attachment, which increases the intention to review. The study incorporated subjective norms, social search, self-efficacy, perceived usefulness of social networking, and the perceived ease of use of social networking sites, which collectively influence the intention of using social networking, culture has been considered as a moderating variable between subjective norms and intention of using

social networking, and the moderating effect is also examined b. According to a second study, a company's physical appearance, credibility, knowledge, and consistency influence s' purchase intentions. According to the survey, influncer advertising plays a significant role in the creation of product perception, and influncer endorsement is also regarded as an essential factor in India and Pakistan for influencing purchase intent. Local and Indian celebrities play a significant role in attracting customers to purchase and consume a specific product. However, it has been reported that influncer characteristics do not significantly influence the purchase of existing products, with quality of goods, brand image, and brand loyalty being more influential (Jamil et al., 2014).

Another study has examined the effect of perceived scarcity as a mediator between cultural identity and purchase intention, as well as the effect of knowledge as a moderator; thus, the purchase intention is predicted by perceived scarcity, knowledge, and cultural identity. According to the study, cultural identity influences purchase intent, but knowledge has a stronger effect (Zhang et al., 2023).

Researchers have previously identified and described personal traits and brand personality as human characteristics associated with the brand that attract many s and increase recurrent purchases by influencing behavior. Prior research has explored the various facets of brand personality, such as sincerity, exhilaration, competence, sophistication, and ruggedness. Other research papers have identified additional variables related to various brands, cultures, and product categories, such as responsibility, activity, aggressiveness, simplicity, and emotion (Lee et al., 2018). Previous research has focused on the brand personality and destination of tourism (Chua et al., 2019; Matzler et al., 2016). Specifically, restaurant and hotel brand personalities have been examined. Researchers have expanded the scope of their inquiry to include emerging variables such as internet influncer-brand congruence, internet influncer-congruence, brand- congruence, brand authenticity, and additional internet influncer involvement. The brand attitude mediates the connection between independent and dependent factors, ultimately leading to the purchase intention. Purchase intent is substantially influenced by brand attitude, specifically internet influncer-brand congruence, internet influncer- congruence, brand- congruence, brand authenticity, and internet influncer involvement, according to a study (Tseng et al., 2023).

Prior research has established the relationship between perceived corporate social responsibility and brand attitude, predicting purchase intention. This study incorporated generation Y's CR attitude as a moderator to assess the relationship change between perceived corporate social responsibility and brand attitude, as well as the relationship between brand attitude and purchase intention. According to the study, brand attitude tends to mediate the relationship between perceived corporate social responsibility and purchase intention. Likewise, generation Y's attitude toward CSR strengthens the relationship between perceived CSR and brand attitude, further explaining and

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influencing purchase intention (Arachchi et al., 2023). Another study examined the function of self-brand connection as a mediator between ethnocentrism, cultural affinity, and purchase intention. This study examined the relationship between ethnocentrism, cultural affinity, and purchase intention. The study found that traits of ethnocentrism and cultural affinity positively affect the self-brand connection and contribute to the mediating role of self-brand connection. In contrast, cultural affinity significantly influences purchase intention (Wu et al., 2022).

This study aims to determine how customer sentiments, purchase intention, sentimental bonding, enjoyment vibe, and emotional excitation predict the purchase intent of Chinese s. Figure 1 depicts the relationship between online influncer and purchasing behavior.

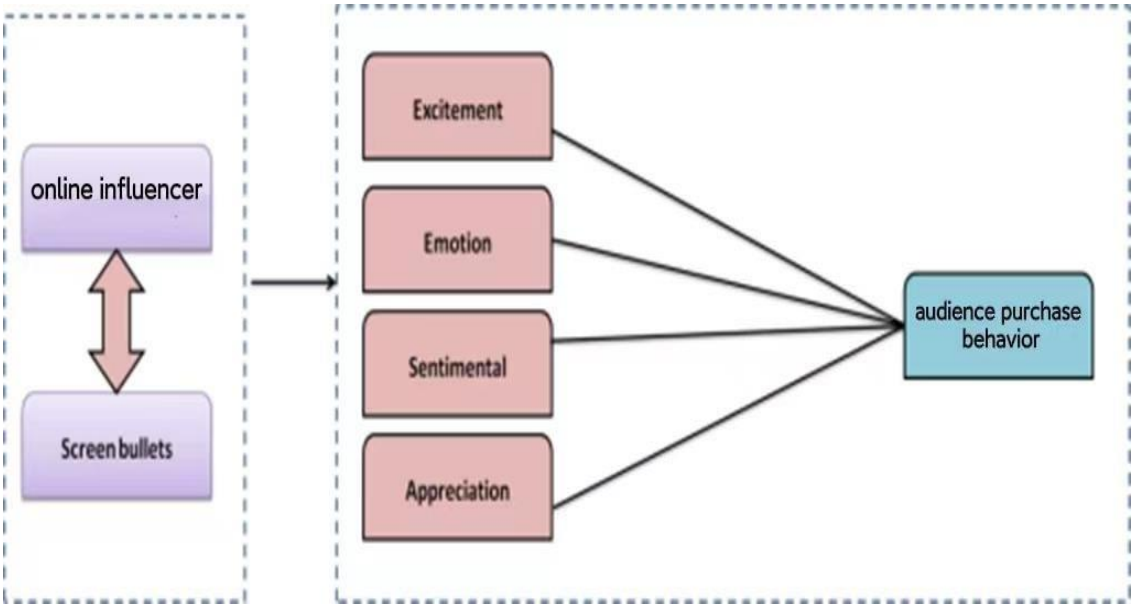

Figure 1. Online Influncer with Customer Purchase Behavior

Due to the proliferation of live streams on the internet, the live stream purchase intent is gaining influencer popularity. As with each successive iteration of Internet development, the wireless Internet revolution has spawned a new economic system: online influncer. Sometimes, the terms online influncer and influencer are used interchangeably, even though influencer more accurately characterizes the type of person who could influence people to purchase a product after hearing about it from an influence on online platforms (Zhang et al., 2023). Due to increased demand for interactive media and specialized recommendations, live streaming has exploded globally in recent years. As a result, many online retailers now employ internet personalities to broadcast live on their social media platforms to advertise and sell products during limited-time promotions. s may feel more connected to the effects due to the on-screen actors' interactions with them, and they can appreciate shopping in a live-streamed virtual mall for the holidays (Mody

et al., 1995). COVID-19 is also a factor in the expected development of the sector in China's economy in 2020. The epidemic's rapid spread has accelerated the development of live streams in established media. Chinese s will continue to have substantial discretionary income in 2020. And the expansion of the homebody economy, which includes e-commerce, internet media, and social media, simultaneously spanned multiple channels. They are transitioning from cooperating to invading one another's territories (Wang et al., 5).

2. CONTRIBUTION

This research is the first to apply and expand upon the concept of online personalities in live streaming. This is the primary contribution of our study. Emotional trust, high engagement, emotional appreciation, emotional pleasure, and several other factors must be considered when analyzing the impact of online influncer live streaming on s' purchasing behavior. We have also scientifically analyzed the effects of live streaming on the likelihood of s purchasing a product using the entire online influncer and audience. (Yuan et al., 2021) have determined the purchase intention, influenced by social relationships and characteristics of entrepreneur endorsers and online purchasing platforms with the moderating role of trust. The researchers examined the health consciousness as a moderator between tourists' happiness and revisit intention, as well as between place attachment and revisit intention (Peng et al., 2023). Pookulangara et al. (2011) found that subjective norms, social search, self-efficacy, perceived usefulness of social networking, and perceived convenience of use of social networking influence the intention to use and increase online purchase intentions. The purchase intent was also influenced by perceived scarcity and cultural identity, with knowledge moderating (X. Zhang et al., 2022). The study examined the effect of brand personality, self-congruity, and affinity on s' intention to stay in a specific hotel, concluding that brand personality, self-congruity, and affinity have a significant positive effect on s' intention to stay in the hotel, with affinity having a significant moderating impact on brand personality and intent to stay in the hotel (Tsaur et al., 2023).

Previous studies have focused on the purchase intention and explained the various factors and variables discussed above; however, the researchers have overlooked the impact of sentimental boding, engagement vibe, and emotional excitement, which predict the customer's feeling and purchase intention, on the 's purchase intention. This study contributes to the body of knowledge by illustrating the relationship between sentimental bonding, engagement vibe, emotional excitement, customer mood, and purchase intention related to customers' purchase behavior.

3. LITERATURE REVIEW

s are the essential factor for the market and are viewed as the source of knowledge transfer; they are also regarded as the most influential factor in innovation. s have

become aware of a deficiency manifested in the purchase dimension influenced by the scope of their activity. pressure has compelled businesses to revise their buyer strategies by increasing marketing activity and preparing offers. s were concerned about their rights, and businesses were concerned about their market position. (Ritzer et al., 2019) s and businesses are pursuing innovative initiatives to attract customers to maximize their benefits. Customers' expectations are increasing, and the demand for personalized products has increased, influencing collaboration. Consumption has become interactive, and manufacturers provide extensive data regarding the perception of their products by analyzing client experiences. It has been established that s have become the company's external employees, participating in the design and production of products and frequently introducing innovations (Sallnäs et al., 2020).

3.1 Purchase Intention and Customers' Purchase Behavior

Customers' needs can be assessed effectively to forecast their purchasing behavior, resulting in a higher acquisition rate, influencing sales, and improving competitiveness. This study has proposed the framework for predicting purchase behavior; the actual purchase behavior is determined in two distinct phases, the first of which involves the motivational factor that motivates s to purchase a specific object. (Qiu et al., 2015) The second stage entails the factors influencing product selection that differentiate between various products and ultimately forecast actual purchase behavior. It has been determined that subsequent spending, interactive features of such applications, branded applications, repeated usage, and discontinuing usage of applications all influence the following expenditures. (Kim et al., 2015) found that interactive applications influence purchases, suggesting that online platforms encourage s to purchase. The researchers have also explained the relationship between the proportion of negative reviews, price satisfaction, and perceived value, as well as the moderating function of purchase goals between the proportion of negative reviews and price satisfaction (Weisstein et al., 2017).

Several factors influence customers' purchase intention, as previous research has focused on purchase behaviors and identified the factors that determine which geographic markets and segments target specific channels. As intentions influence actual behavior, studies have been conducted to determine the numerous predictors. Therefore, the research demonstrates that online platforms enable customers to purchase, benefiting retailers. The purchase intent is highlighted as one of the significant and essential variables that must be investigated. The research has focused on the pre-purchase phase, which influences behavior. It has also been reported that various factors influence and predict the attitudes, evaluations, and internal factors that influence purchase intent and behavior. Online purchase intention is the extent to which a will likely purchase a specific product through an online store. Due to the online store's features and usability, online purchases have increased. The traditional purchasing pattern influences purchase

behavior in physical stores, but online platforms play a crucial role in encouraging s to make online purchases (Beuckels et al., 2016; Nguyen et al., 2016; Wei et al., 2019).

3.2 E-commerce and Sentimental Bonding through Live Streaming

Online celebrities engage people in live streaming e-commerce by streaming themselves using computer games, attempting foods or beverages, trying on apparel and perfumes, and providing product quality information, among other activities. By discussing and exchanging ideas, viewers of live streams can develop social connections with others. This demonstrates that the primary difference between live and traditional broadcasts is the ability to interact directly with online celebrities and other viewers. Customers' needs for sociability and perceived delight are satisfied through direct interaction, which promotes product information quality, identification concentration, networking, and purchasing behaviors. Emotional communication is interpreting, transmitting, and communicating emotional experiences among individuals or groups. It begins with the thoughts and emotions of the presenter. It is based on evaluating actual evidence and behavioral reactions, leading to both the sender and receiver's emotional states and interpersonal communication.

3.3 Enjoyment Vibe for Live Streaming

Customer sentiments can be categorized into several fundamental groups. Perceived enjoyment, exhilaration, and dominance are the primary bipolar aspects of emotional experience. The superiority aspect could be omitted, leaving the other two components sufficient to depict the emotional responses to various stimuli. The three elements mentioned above have been modified numerous times, and the two essential aspects of enjoyment and exhilaration revolve around each other. It revealed superiority had the lowest statistical validity, whereas enjoyment and exhilaration are effective substitutes for situationally induced emotional responses. Perceived enjoyment refers to how individuals feel better, happier, fulfilled, and elated.

Hypothesis (1A): s' positive feelings towards online celebrities will lead to higher purchasing behavior.

Hypothesis (1B): Buying intentions will increase due to enjoyment feelings brought on by various s.

3.4 Emotional Excitation for Live Streaming

Emotional excitation describes how stimulated, attentive, engaged, joyful, and aroused people feel in a given situation. The extent to which a person feels better, cheerful, joyful, and delighted during live streaming is referred to as the perceived enjoyment feelings acquired by customers, and it influences whether they purchase products with a limited-time promotion. The level of stimulation, positivity, and alertness experienced during a live stream affects the affective state of an audience, which in turn affects the

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likelihood that they will purchase a product. The purchasing environment may stimulate the customer's desire to interact with the store's ambiance and emotional responses, which may also increase their purchase intent.

Hypothesis (2A): Higher purchasing impulses will result from the online influncer's ability to arouse emotional responses.

Hypothesis (2B): Customer feelings sparked by the other users' actions will lead to higher buy intentions.

3.5 The Sentiment of Appreciation for Live Streaming

Appreciation is a pleasurable psychological state that individuals experience when observing extraordinary abilities or admirable behavior in others. It is a concept of positive thinking corresponding to a high regard for exceptional people or mentors. As evidenced by the adoration for authorities and renowned people, adoration is crucial in attracting devoted admirers and large audiences. The primary source of followers' devotion and fascination with celebrities is their admiration for the individuals, and this admiration motivates people to purchase the limited-time products that the influncer promotes. Organizational appreciation improves perceptions and behavioral intentions and increases employee engagement, connectivity, and zeal.

Hypothesis (3A): Increased purchase impulse will be fueled by help gathered brought forth by the online influncer.

Hypothesis (3B): Increased purchase impulse will be fueled by the emotional trust generated by other s. Figure 3 depicts the hypothesis of live streaming.

Cai et al. (2021) focused their live streaming product offerings on Li Jiaqi's studio. It investigates how these live streaming facilities function in-depth to determine if they attract enough viewers and buyers to generate such massive trade volumes. It uses questionnaires and situational analysis as the primary method. Rungruangjit (2022) implemented partial least squares structural equation modeling (PLS-SEM) for live streaming. Any Chinese who has previously purchased cosmetics from a Taobao viral video influncer is eligible to broadcast. In addition, it was demonstrated that the observed knowledge of the brand ambassadors controlled the relationship between the consistency of celebrities and the desire to purchase (Garg, 2020). Using the stimulus-organism-response (SOR) framework, Lin et al. (2023) determined parameters that influence immediate purchases while observing live streaming. It extends the SOR model by examining whether various aspects of a live-streaming retail business can affect a customer's mood.

Then, a study model of impulsivity purchasing behavior is developed (Ahmed et al., 2020). There has been a substantial increase in e-commerce live streaming, and the prevalence of impetuous purchases has been identified as a major factor in the success

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of online purchases. Ye et al. (2022) investigated the causes of s' irrational spending patterns. Using online festival promotion as the exogenous variable and irrational purchasing as the predictor variables, a matching interpretive structural system is designed (Shahabaz et al., 2021). Ma (2021) identifies the causes of virtual purchasing by combining the key features, connectivity expansion, online prominence, and expert purchasing attitude. Ho et al. (2022) investigated the effect of live streaming on s' purchase propensity. In addition, no research has examined how the 7Ps of marketing management influence s' tendency to make purchases, especially from the perspective of stores. It seeks to elucidate the relationships between the 7Ps and the viewers' desire to purchase due to their exposure to the providers' programming (Li, 2021). The authors propose an approach that emphasizes integrated marketing strategies. There was a positive relationship between the desire to view and the desire to buy.

Moreover, the relationship between the 7Ps of advertising and the desire to purchase is entirely mediated by the viewer's intent to view. Apasrawirote et al. (2022) investigated the relationships between repurchase intention, advertising strategy, digital advertising, and promoter, all influencing s' perceptions of a product's quality and general attitudes. It aimed to determine what factors influence s' decisions to purchase on live-streaming websites (Salihu et al., 2022). (Lou et al., 2022) demonstrated that prominent advertisements and products affect users' purchasing decisions. Real-time advertisements are a prevalent cue that can be used strategically to increase sales through ambient cues.

As a consequence of the introduction of online streams, people's expectations for how to spend their leisure time and money are shifting. Independent merchants seeking to expand their customer base have adopted live streaming purchasing (Z. Zhang et al., 2022). Due to the constraints, we analyze the effect of online influncer live stream limited-time promotions on purchasing behavior.

3.6 Problem Statement

Sometimes the negative behavior of celebrities is associated with the perceived insecurity of an entire company. Sometimes, an online influncer can render a product or business irrelevant. Not even celebrities are impervious to the repercussions of their endorsements. Online personalities may infrequently engage in illegal product promotion, creating a sense of doubt. Advertising featuring famous individuals requires precision. Companies use mass media to communicate with their customers; however, social media platforms have increased as the customers' thinking, emotions, requirements, wants, and demands have evolved. Researchers have invested billions of dollars to determine the factors influencing decisions. As mass media approaches customers and influences their purchasing decisions, it is necessary to focus on identifying the orientation of behavior. It has also been reported that the billions of dollars spent on brand recognition affect behavior. It has also been established that s

can only distinguish between a small number of brands, that brand advertising is insufficient, and that brand success is not assured (Mirabi et al., 2015; Thapa, 2012). This investigation incorporates several problems in the current research field. The research area related to influncer prevalence focuses on the frequency of influncer endorsement, how influncer endorsement campaigns should be managed, the financial impact of influncer endorsements on firms, the potential effect on brand evaluations of influncer endorsements, the actual impact on brand evaluations of influncer endorsements, how influncer characteristics transfer to the brand, and the effectiveness of influncer endorsements.

The companies spend millions of dollars on celebrities for one advertising campaign to advertise the product on media for attention and to deploy various advertising strategies. Few companies pay celebrities large sums of money to associate themselves with their products to attract s and perceive the trickle-down effect of product popularity to influence the audience and increase sales. The reality, however, is that various products have failed to captivate customers' attention and that the unacceptance of a influncer negatively affects the products' performance.

The negative influence of influncer endorsements may alienate rather than allure s (Miciak et al., 1994). In 2009, it was reported that the negative effect of influncer on a brand caused Tiger Woods to lose over 12 billion dollars in advertising revenue due to scandals. There may be a negative impact on people's purchase intentions (Apejoye, 2013). In addition to multiple endorsement agreements, an online influncer has a unique product. Customers are influenced to behave unfavorably due to this behavior. Therefore, we examine the effect of limited-time promotions featuring online celebrities on decisions.

3.7 The Suggested Work

The emotional appeal may pique s' interest in the product information quality promoted by online personalities. It was also discovered that positive emotions such as happiness, enthusiasm, appreciation, and faith affect purchase decisions. Therefore, this research investigates the effect of limited-time online influncer live stream promotions on purchasing behavior. As illustrated in Figure 2, the suggested method entails the workflow outlined below.

3.8 Data Preprocessing Using Normalization

Data preprocessing refers to the actions taken to clean and organize data before their use. It is recommended to verify the data's veracity before submission. The procedure by which a system organizes its data is normalization. Preprocessing is a series of operations performed on data to modify its origin. Normalization requires several stages, including adding missing information and a change in entity type. And because it helps eliminate unnecessary processes and increases credibility, it accelerates the entire

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execution process. Therefore, the collected records were normalized using both Min-Max and Z-score normalization.

3.9 Min-Max Normalization

Min-max normalization is one of the most frequently used techniques for data normalization in online influencer by influencer popularity. Min Max Normalization is employed for data transformation. Based on the minimum and maximum values, it converts the output of each quantitative characteristic into the desired value. Equation (1) is used to determine the minimum and maximum values.

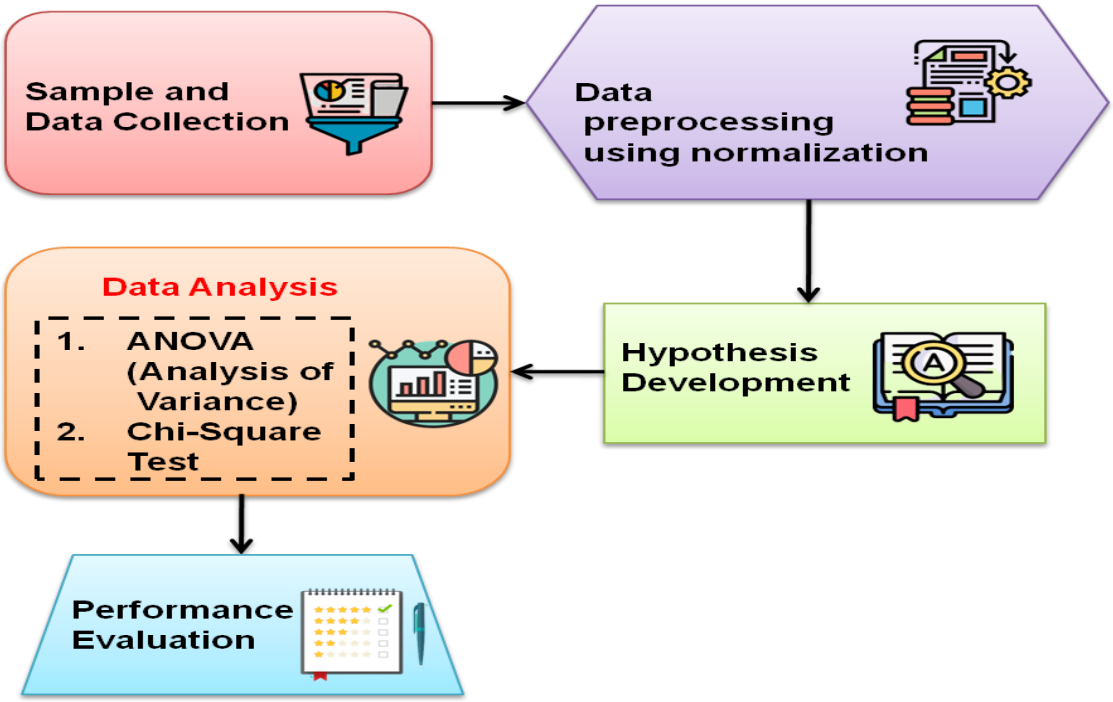

Figure 2. The Workflow of Suggested Work

$$Min_{max} = \frac{(M - M_{min})}{(M_{max} - M_{min})} \quad (1)$$

where M is a collection of the predicted values denoted in the dataset. The minimum and maximum values in M are denoted by M_{min} and M_{max}

3.10 Z-score Normalization

Z-score normalization enables the user to comprehend the potential that a grade can fall inside the data's normally distributed. To deal with extreme values in a dataset, Z-Score normalization is performed and computed using equation (2).

$$\bar{F} = \frac{F - \forall}{\delta} \quad (2)$$

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where $\bar{F}$ Represents the newly assumed value, F denotes the quantitative element,$\forall$ is the average of feature values, and δ is the standard deviation of feature values.

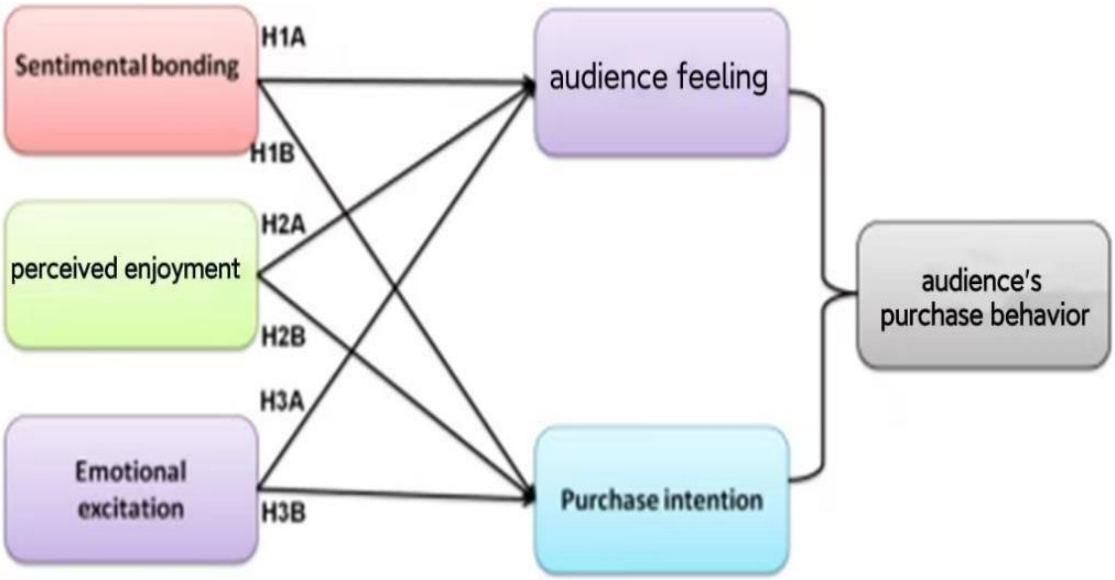

Figure 3. Hypothesis of Live Streaminging

Table 1 displays the hypothesis and its characteristics.

Table 1. Hypothesis and its Characteristics

Hypothesis	Link	Independent factor	Dependent factor	Outcome
H1: Enjoyment →	+	0.308	0.369	Support
H2: Excitement →	+	0.159	0.200	Support
H3: Sentimental faith →	+	0.122	0.142	Support
H4: Appreciation →	+	0.244	0.283	Support

3.11 Data Analysis

Examining, cleansing, manipulating, and modeling data to acquire pertinent information, enable inferences, and provide effective care. Numerous industries, including business, research, and political theory, use data analysis with numerous dimensions and methodologies. It encompasses numerous approaches and is known by a wide variety of names. Data analysis contributes to more rational decision-making and increases the productivity of businesses. In this investigation, the ANOVA and Chi-square tests are utilized.

3.12 ANOVA

Frequently, the statistical technique known as analysis of variance (ANOVA) is used to examine how distinct values vary. The rule of the total variance in the data, upon which

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ANOVA is based, divides the measured variances in a particular parameter into characteristics attributable to different causes of variation. ANOVA generalizes the F-test by providing a data analysis test to determine whether or not two or more sample variances are equal. F-test is calculated with equation (3).

$$F_T = \frac{variations\ in\ therapies}{Variation\ within\ therapies} \tag{3}$$

The above equation can also be written as

$$F_T = \frac{AS_{therapies}}{AS_{Fault}} = \frac{TS_{therapies/(T-1)}}{TS_{Fault}/(n_T - I)} \tag{4}$$

Where AS is the average square, TS represents the total squared value and $F_{T,}$ T is the number of therapies, and n_T is the total number of cases. Equation (4) is also used to calculate F-test.

3.13 Chi-square Test

If the testing is chi-squared distribution within its null hypothesis, a chi-squared test is an appropriate statistical test. Chi-squared analyses are utilized when the distributions of the test statistic closely resemble the possibilities; that is, as the number of observations increases, the sampling distribution of the testing statistic more closely resembles a chi-squared distribution. The chi-square test is one of the fundamentals of contemporary statistical analysis.

A null hypothesis states that the probability of an observation belonging to the jth class is given by classifying m observations in a randomized population sample into p mutually exclusive categories with the corresponding observed values y_j (for j = 1, 2,..., p). As a result, we get the predicted values $k_j = nq_j$ for every j. Equation (5) evaluates chi-square for the predicted values q. It is also written as equation (6).

$$\sum_{j=1}^{p} q_j = 1 \tag{5}$$

$$\sum_{j=1}^{p} k_j = n \sum_{j=1}^{p} q_j = n = \sum_{j=1}^{p} y_j \tag{6}$$

$$\chi^2 = \sum_{j=1}^{p} \frac{(y_j - k_j)^2}{k_j} = \sum_{j=1}^{p} \frac{y_j^2}{k_j} - n \tag{7}$$

$$\chi^2 - \chi^2 = \sum_{j=1}^{p} \frac{y_j^2}{k_j} - \sum_{j=1}^{p} \frac{y_j^2}{k_j} \tag{8}$$

Equations (7) and (8) were employed to calculate the chi-square value for the p population with the predicted value. Table 2 represents the chi-square analysis of online celebrities.

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Table 2. Chi-square Analysis

Online Influncer category	Customer's features	Average	Middle value	Standard deviation	Minimum	Maximum
Beauty products	EF (Enjoyment feeling)	89.59	87.49	52.00	4	197
	EE (Excitement emotion)	549.97	549.97	315.24	35	1122
	AF (Appreciation feeling)	487.39	490.00	279.811	31	1007
	SF (Sentimental faith)	639.72	646.50	367.44	41	1210
Apparel	EF	252.49	259.49	132.812	17	493
	EE	348.42	358.49	183.33	23	675
	AF	304.81	312.50	161.13	28	599
	SF	411.50	426.00	217.00	42	810
Meals	EF	384.48	385.40	200.78	42	785
	EE	251.51	248	132.89	29	497
	AF	292.19	294.49	128.21	75	496
	SF	219.82	216	116.35	24	450

4. PERFORMANCE ANALYSIS

According to the findings, customers' propensity to purchase quality goods and services recommended by a live stream may also be influenced by the sentiments of many other viewers watching the same live stream. Particularly, enjoyment, excitement, appreciation, and sentimental faith were identified as the effect of protecting the cosmetics section Live stream on online purchasing. Online celebrities frequently demonstrate significant insight by employing their skills and proven analysis to disclose the composition of the goods and illustrate the eye-catching marks with emotions, thereby significantly reducing the potential risk of losing customers for beauty products and clothing goods. Celebrities on the Internet also organize events, such as limited-time promotions, to communicate with their audience. This is one reason for the popularity of online celebrities. Feelings of sentimental faith, excitement, adoration, and enjoyment will influence and enhance customers' purchase decisions.

4.1 Customer Satisfaction

Customer satisfaction measures a 's satisfaction with a brand, its value, and the entire service. It indicates whether or not the is pleased to interact with a company. It is essential for determining the effectiveness of an organization. Figure 4 depicts the level of gratification with purchases. Figure 4 demonstrates that s prefer online purchasing to traditional shopping because their items receive more attention online.

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4.2 Online Purchasing

Online purchases are e-commerce that enables buyers to transact directly with vendors over the internet using a web browser or digital platform. Figure 5 depicts the products available for online purchase and their purchase volume. The items purchased are cosmetics, clothing, groceries, toys, and literature. These products achieved respective purchase rates of 95%, 85%, 60%, 72%, and 58%. This indicates that s are eager to purchase products online.

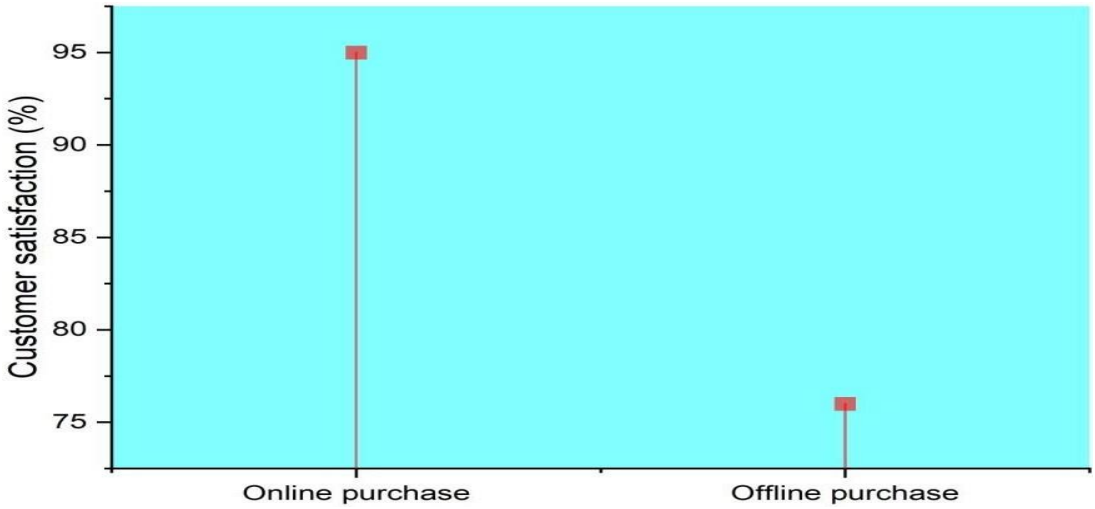

Figure 4. Customer Satisfaction

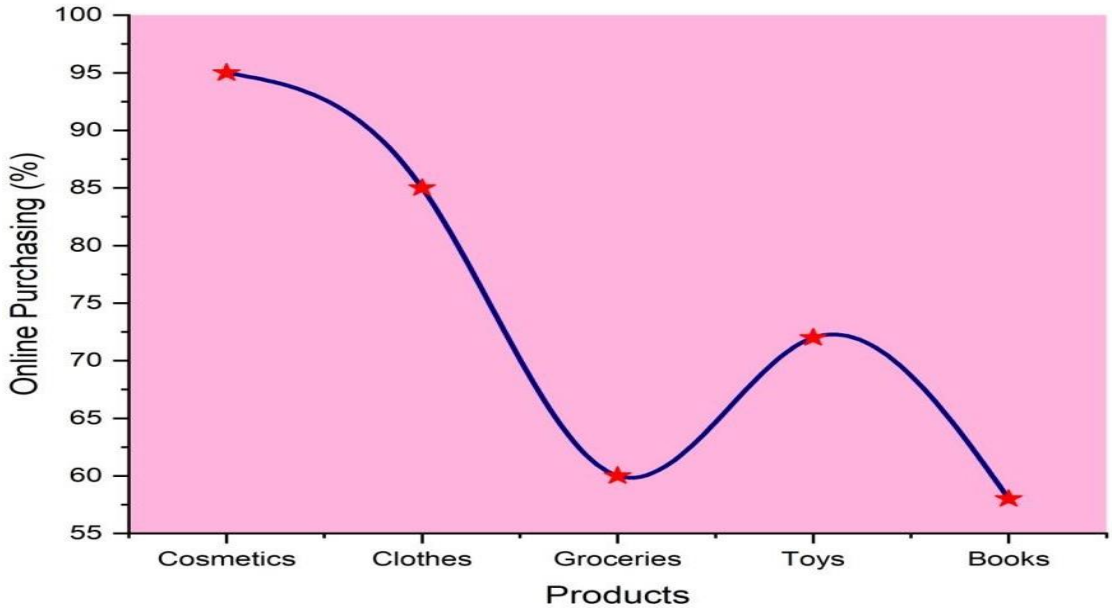

Figure 5. Products and Purchasing Levels

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4.3 Targets for Online Celebrities

No longer were celebrities required to disseminate information or messages through their managers and publicists first. Due to online networks, celebrities can now communicate with their fans, advance their careers, and ultimately become more famous. Figure 6 depicts the objectives for an online influencer to sustain this level of sales. The objectives include increasing sales and revenue, increasing lead generation, attracting more website visitors, enhancing lead quality, expanding brand recognition, automating processes further, and obtaining a sufficient budget. They achieved 90%, 85%, 91%, 65%, 79%, 92%, and 84% of their career objectives for an online influencer.

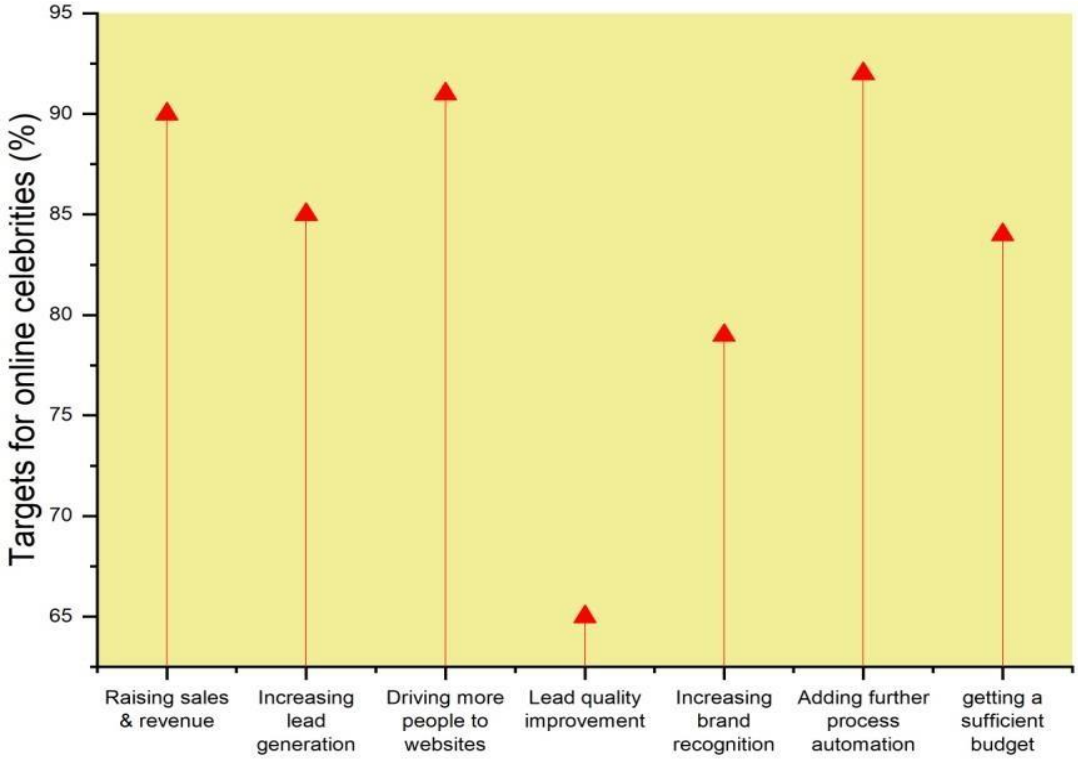

Figure 6. Targets for Online Celebrities

5. CONCLUSION

This study examined the impact of online celebrities in live streaming e-commerce on customers' propensity to purchase and the emotive expression-based process underlying it. We investigated and confirmed that audiences' purchasing behavior is influenced by the enjoyment, appreciation, excitement, and sentimental faith perceived in online influncer broadcasts. Utilizing a questionnaire for data collection and analysis, this information was obtained. ANOVA and the chi-square test are used to analyze data. The findings indicate that online personalities and other viewers psychologically affect

viewers, influencing their purchase decisions. Based on our results, approximately 95% of customers must be satisfied with their online purchases. Furthermore, 90% of customers prefer to buy cosmetics and clothing online, and the allure of online personalities leads to increased online purchases.

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