International Journal of Economic Sciences

Journal homepage: www.ijes-journal.org
eISSN: 1804-9796

Social Media Opinion Leaders' Self-Presentation and Youth Tourism Impulse Buying: A Mediated SOR Analysis

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ARTICLE INFO

Article history:
Received 13 February 2025
Received in revised form 18 March 2025
Accepted 17 April 2025
Available online 8 May 2025

Keywords:
Social Media Opinion Leaders; Impulsive Buying Tendency of Tourism; Online Self-presentation; Perceived Value; Flow Experience; SOR Model.

ABSTRACT

This study pioneers the application of impression management theory to tourism impulse buying, identifying four novel self-presentation attributes. Data were collected from an online and an offline survey of 345 Chinese university students. Using SPSS22.0 and AMOS21.0 statistical software, this paper analyses the pre-survey and formal survey data through descriptive statistics, reliability and validity tests, correlation analysis and structural equation model testing, and the calculation results verify the validity of the research hypotheses and models proposed in this paper. The results reveal that the four self-presentation attributes, professionalism, interactivity, homophily, and entertainment, positively influence young people's impulsive buying tendency. Among them, the influence of professionalism exceeds the other three attributes, and its impact on perceived value exceeds the impact on flow experience. Interactivity had a greater impact on the flow experience, outpacing the other three attributes. Homogeneity had a slightly stronger effect on perceived value than on flow experience. Entertainment has more of an impact on perceived value than the other three attributes. Moreover, flow experience and perceived value significantly affect impulsive buying and mediate these relationships. Also, perceived value has a greater impact on impulse buying than flow experience. These findings clarify the psychological mechanisms and pathways underpinning young people's impulsive buying tendency, emphasizing their impulsive, highly visual, and immediate nature, as well as their dependence on digital technology. The study also offers strategies to guide young consumers toward more rational purchase decisions.

1. Introduction

As of February 2024, short videos about travel have been viewed more than 90 billion times on the Douyin App, making "travel with a short video" the best choice for young travelers. The emergence of social phenomena provides a hot topic for theoretical research, which drives this study to explore the impact of social media opinion leaders on young people's impulse consumption. This is also the main driver for this study to focus on the tourism sector.

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https://doi.org/10.31181/ijes1412025179

Early studies on impulse buying focused on physical-store contexts, defining impulse buying as an unplanned purchase [1][2]. Such impulse buying behavior tends to be sudden, driven by strong emotions, and difficult to resist [3]. It is spontaneous, involving minimal reflection and lacking a prior purchase intention [4].

Online impulse buying is similarly unplanned but typically more frequent, given that online shopping removes many of the constraints found in physical stores, thus raising the likelihood of impulse purchases [5]. Young people, in particular, are at the forefront of digital consumerism, frequently shopping online and actively engaging with social media [6]; consequently, they often exhibit higher rates of impulse buying.

This paper centers on impulsive travel purchases among young people, defined here as adolescents, college students, or young professionals [7]. In recent years, youth travelers have become a significant segment of the global tourism population. The United Nations World Tourism Organization (2008) classifies the generation aged 15 to 29 as youth tourism [8]. Aligning with these parameters, many researchers have focused on college students [9,10] to investigate various issues surrounding youth tourism, such as impulsive buying.

What prompts young people to make impulsive purchases on digital platforms? This question is pertinent. Existing research suggests that both external environmental stimuli (e.g., social media) and internal psychological structures (e.g., cognition, emotions) contribute to impulse buying [11]. Young people's online impulse buying is largely driven by psychological factors that may stem from incomplete psychological development. For instance, "cognitive dissonance" among Indian college students [12] and "negative affect" induced by upward social comparisons on SNSs among Chinese students [13] both influence their impulse purchases. Conversely, positive emotional factors—such as hedonic browsing—can also trigger impulse buying [14,15]. Nonetheless, few studies have systematically examined how emotional and cognitive variables jointly affect impulse buying among young people, nor have they clearly delineated the underlying mechanisms.

Most existing work on young people's online impulse buying overlooks product or industry characteristics. However, the influence of product attributes on impulsive buying behavior is far from trivial. Nonetheless, tourism's role in impulsive buying among young people remains underexplored [16]. This study focuses on this research gap.

In the research, this paper creatively applies the impression management theory to develop the impulse purchase research into a new and less concerned tourism consumption field, aiming to discover the external stimuli and internal psychological factors that affect young people's impulse purchase, and provide self-presentation strategies for the content creation of social platforms and guidance suggestions for young people's rational consumption.

The literature review shows that there is a gap between the research on impulse travel purchase propensity and the research on impulse travel purchase behavior. Scholars Laesser and Dolnicar (2012) introduced the concept of impulse buying into the field of tourism and described impulse tourism as an unplanned trip that is separated by up to one week between the decision to travel and the actual departure, which is a type of sudden travel without any prior planning [17]. In fact, impulsive tourism consists of two phases: the propensity of behavior and the implementation of the behavior. In fact, the former refers to the sudden strong and immediate desire to travel after being stimulated by an external tourist, which is usually a psychological impulse, while the latter refers to the act of actually traveling. The formation of impulsive travel intentions usually occurs immediately after the tourist is stimulated. On the contrary, impulsive travel behavior requires a certain amount of time to plan and schedule. Zafar, A.U. (2021) argued that impulse buying propensity/willingness is a surrogate variable for impulse buying behavior, as it is often a precursor to actual impulse buying behavior [18]. The existing literature does not distinguish between propensity and behavior when

studying impulse travel purchases, and the former is the focus of this study, because it is the precondition and determinant of impulse travel behavior. Potential travelers are very likely to be stimulated by the presentation of opinion leaders when browsing social media/short videos, resulting in a sudden desire to travel, and this stage involves the inner desires and tendencies of potential tourists, which is a key step in deciding whether to carry out actual tourism behavior.

The research process of this paper begins with literature review. Variables are defined according to existing literature, and 27 hypotheses are developed for the relationship between variables, and a conceptual model is proposed. The research design includes pre-study and formal study. Questionnaires are used to collect consumer data, and statistical software and structural equation models are used for data processing and testing.

In addition, the research in this paper will also enrich the research on online tourism impulse buying. Early studies of impulse buying/unplanned purchases [19] focused on the retail industry, as retailers knew that consumers often made impulse purchases and wanted to appeal to consumers' impulse tendencies [20-22]. In recent decades, a large number of studies have been produced in this area [11]. The focus of this paper is on the comparison of tourism with traditional retail. The rise of travel e-commerce is a challenge faced by the tourism industry, and there is not much research literature on tourism impulse buying in the context of social media, which also provides a space for the research of this paper.

On the one hand, impulse buying by online consumers achieves faster instant gratification than retail consumers and is more typical of autonomous behaviors that do not consider the consequences at all and are irresistible [23]. On the other hand, compared with other traditional industry products, tourism products are more suitable for vivid online promotion due to their intangible, experiential and hedonistic nature, which is more tempting to consumers [16]. Therefore, the tourism impulse buying in the context of self-media provides a new research perspective for the study of this paper, which is different from the impulse purchase of offline retail goods.

The focus of this paper is on the special influencing factors of impulse buying in the tourism industry in the context of social media, which is different from the traditional retail industry. There are not many existing research literatures in this area, which also provides space for the research of this paper.

2. Literature Review

With the rise of e-commerce, impulse buying also occurs on virtual platforms. Online impulse buying is similarly unplanned but typically more frequent, given that online shopping removes many of the constraints found in physical stores, thus raising the likelihood of impulse purchases [5]. Young people, in particular, are at the forefront of digital consumerism, frequently shopping online and actively engaging with social media [6]; consequently, they often exhibit higher rates of impulse buying.

An impulsive buying tendency refers to the likelihood of making unplanned, immediate, and spontaneous purchases, contrasting with deliberate and planned purchasing behavior. Early scholars considered impulsive buying as unplanned and overly simplistic [19]. While impulsive buying is unplanned, it is considered irresistible, sudden, and complex. Young consumers aged 18-34 exhibit higher impulsive buying rates, influenced by emotions, personality, social presence, and shopping mode (online vs. offline) [24].

Based on a review of the literature, most studies on young people's impulse buying tendencies influenced by social media opinion leaders do not differentiate between the specificities of industries [13,25]. Therefore, the tourism sector should not be overlooked when studying young people’s

impulse buying tendencies. This paper aims to pioneer research into how social media opinion leaders' self-presentation influences young people's impulse buying tendencies in the tourism sector.

Impulsive travel intention refers to a sudden, unconscious, and often intense desire to travel [26]. When analyzing impulsive buying in tourism, researchers have suggested that impulse buying is considered a common phenomenon in the tourism industry [27].

From the perspective of literature, it seems that there are few studies on the mechanism of the influence of online self-presentation of social media opinion leaders on young people's impulse buying tendency.

The role of social media opinion leaders has been underestimated in the existing literature when studying factors influencing young people's online impulse buying tendencies. Opinion leaders are individuals who significantly influence others' decisions [28]. From the perspective of literature review, the influence and appeal of opinion leaders lie in their shared characteristics, which are typically described as likability, trustworthiness, credibility, educational impact, and confidence [29,30].

In the process of information dissemination, certain social media users known as opinion leaders can exert significant influence on the perspectives and decision-making behaviors of other users [31]. During the formation of user attitudes toward products or services, opinion leaders can alter user beliefs and influence purchasing decisions [32]. This is because opinion leaders spread opinions more rapidly within social networks that have followers.

According to existing literature, social media opinion leaders can be defined as individuals who attract a large following on social media platforms, and impact others' attitudes and behaviors within a specific time frame. These characteristics make young, susceptible followers more likely to be attracted and influenced [33]. This phenomenon can also be viewed as a precursor to young people's tendency toward online impulse buying.

Social media leaders engage with their audience through self-presentation/impression management. From the perspective of impression management theory, impression management is not only a means of influencing how others treat an individual but also an essential component of social interaction. It involves the conscious or unconscious attempt to influence others' perceptions of a person, object, or event by regulating and controlling information during social interactions [34]. The concept of self-presentation uses theatrical metaphors to analyze how people shape social roles and maintain social identities through performance in everyday life [35].

As social media opinion leaders, taking short videos as an example, self-presentation in short videos requires opinion leaders to showcase themselves in front of the camera for their audience. For social media opinion leaders, online self-presentation helps them demonstrate expertise and/or authority on specific topics. In today's digital world, their influence has even been further amplified [36].

Regarding the attributes of social media opinion leaders' self-presentation, literature reviews indicate that there is a lack of empirical studies identifying these attributes. Some researchers emphasized the influence of visual presentation over textual content, noting that the attractiveness displayed by social media spokespersons fosters perceived similarity among users, which enhances persuasive effects [37]. Building on this, this paper proposes that the self-presentation attributes of social media opinion leaders encompass four dimensions: professionalism, interactivity, homophily, and entertainment.

From the point of view of the importance of this study, it is an innovation of theoretical research to supplement the gaps of existing literature and expand the research field to the influence mechanism of young people's impulse buying tendency in online travel. Online self-presentation by social media opinion leaders, as an external stimulus that affects young people's impulse buying, is a

factor influencing the mechanism together with flow experience and perceived value. The hypothesis development of this paper also follows this research idea.

Research suggests that for young people, their low self-control not only directly enables impulsive buying but also fosters a positive attitude toward targeted online displays and impulsiveness within social networks. Even individuals with good mental health may develop brand addiction or impulsive buying tendencies when interacting with social media opinion leaders [38].

According to the SOR model [39], social media influencers use online self-presentation (credibility and motivation) as an external environmental stimulus to influence purchase intention [40]. While emotions and cognition function as internal factors of the organism as a bridge to influence occurrence, flow and perceived value correspond to emotions and cognition. Researchers believe that impulse buying is considered a common phenomenon in the tourism industry [26]. For example, a romantic stimulus may be closely related to unplanned behavior, so exposure to this external stimulus can unexpectedly increase a customer's purchase [41] or may trigger impulse buying tendencies among tourists [42].

Existing research methods usually design research paths based on SOR theoretical framework, test hypotheses through correlation analysis, and try to prove that perceived value mediates the relationship between customer experience and word of mouth [43]. Flow experience directly and positively determines purchase intention [44]. H. et al., 2022). The advantage of the existing SOR model is that it provides a clear causal chain and is easy to verify. The correlation test method can quantify the correlation strength among variables, assist in verifying the path relationship of the SOR model, and enhance the empirical persuasion [45].

However, the model may be overly linearized, and correlation analysis can only prove the correlation of variables. Therefore, this paper considers the use of multi-dimensional variables in the study, avoiding single-dimensional bias, and strives to reflect the complexity of social media influence more comprehensively. At the same time, flow experience (immersion) and perceived value (functional and cognitive value) are introduced as mediating variables, and the psychological mechanism is revealed in combination with the dual-process theory to deepen the understanding of "how to influence".

Flow experience is characterized as being fully immersed in an activity while experiencing pleasant emotions [46], and perceived value encompasses enjoyment and utilitarian factors [47]. Based on this, it can be inferred that as a crucial external environmental stimulus, social media opinion leaders' self-presentation influences flow experience and perceived value, thereby affecting young audiences and subsequently their impulsive travel buying tendencies. Therefore, this paper proposes the following hypotheses.

H1: Social media opinion leaders' self-presentation has a positive impact on young people's impulsive buying tendency.

H2: Social media opinion leaders' self-presentation has a positive impact on flow experience.

H3: Social media opinion leaders' self-presentation has a positive impact on perceived value.

In the next hypothesis development, according to the SOR model, social media self-presentation as an external environmental stimulus will be refined into four types: professionalism, interactivity, homogeneity, and entertainment, which will have an impact on the flow experience and perceived value of young social media audiences and then affect the impulse buying behavior.

According to the cue consistency theory and social identity theory [48], people's attitudes are shaped by the synthesis of values derived from cues that deliver consistent information [49], and information and image consistency have an impact on the cognitive and affective identification of individuals, which in turn affects behavioral intentions [50]. Therefore, homophily and entertainment selected along with professionalism and interactivity as self-presentation attributes.

When studying the factors influencing impulsive travel purchases, researchers found that among experiential factors, tourist participation, learning, and entertainment significantly impact impulsive buying behavior [16]. This finding suggests, from another perspective, that expertise has a certain influence on impulsive travel purchases. It can be anticipated that the professionalism and expertise displayed by social media opinion leaders in their self-presentation will enhance the quality of content disseminated via social media, including travel-related content. This, in turn, may influence young people's impulsive travel buying tendencies, flow experience, and perceived value. Therefore, the following hypotheses are proposed in this paper.

H1a: Social media opinion leaders' professionalism has a positive impact on young people's impulsive buying tendency.

H2a: Social media opinion leaders' professionalism has a positive impact on flow experience.

H3a: Social media opinion leaders' professionalism has a positive impact on perceived value.

The interactivity of opinion leaders is a crucial marker of their influence, enhancing audience trust and subsequently influencing their attitudes and behaviors [51]. Research indicates that the visual appeal, authenticity, interactivity, and expertise of short video opinion leaders positively influence followers' utilitarian value [52].

The influence of interactivity mainly stems from an imagined friendship, a relationship formed by individuals with others based on emotional connections and attachments [53]. Furthermore, opinion leaders build their social interaction ties through self-identification, knowledge contribution, and reciprocity [54]. This suggests that the interactivity of social media opinion leaders' self-presentation may enhance emotional connections and knowledge exchange with their audience, including the sharing of travel and tourism-related knowledge. Consequently, it may influence young people's impulsive travel buying tendencies, flow experience, and perceived value. Therefore, the following hypotheses are proposed in this paper.

H1b: Social media opinion leaders' interactivity has a positive impact on young people's impulsive buying tendency.

H2b: Social media opinion leaders' interactivity has a positive impact on flow experience.

H3b: Social media opinion leaders' interactivity has a positive impact on perceived value.

The greater the opinion similarity between social media opinion leaders and their followers, the fewer opinion clusters exist among followers. When opinion leaders and followers share more commonalities, the opinions of followers become more concentrated. The study found that three dimensions—attitudes, values, and appearance—significantly influenced the popularity of video influencers [55]. On social media platforms, the homogeneity between influencers and their audience stimulates customer value co-creation behavior, which in turn drives followers' purchase intentions [56].

This suggests that the homogeneity in the self-presentation of social media opinion leaders may influence the opinion and attitude similarity of young audiences, including their views on tourism and travel. Consequently, it may affect young people's impulsive travel buying tendencies, flow experience, and perceived value. Therefore, the following hypotheses are proposed in this paper.

H1c: Social media opinion leaders' homogeneity has a positive impact on young people's impulsive buying tendency.

H2c: Social media opinion leaders' homogeneity has a positive impact on flow experience.

H3c: Social media opinion leaders' homogeneity has a positive impact on perceived value.

For travel consumption, tourism activities inherently carry strong entertainment and hedonic qualities, which can attract young online audiences with hedonic motivations. Combined with the interesting travel-related stories presented by social media opinion leaders during lifetimes, this can

be highly tempting for young consumers with low self-control. Research has shown that exposure to attractions with romantic story themes influences tourists' impulsive buying behavior [41].

Based on this, it can be inferred that the entertainment dimension of social media opinion leaders' self-presentation may influence young people's hedonic motivations for travel, thereby potentially affecting their impulsive travel buying tendencies, flow experience, and perceived value. Therefore, the following hypotheses are proposed in this paper.

H1d: Social media opinion leaders' entertainment has a positive impact on young people's impulsive buying tendency.

H2d: Social media opinion leaders' entertainment has a positive impact on flow experience.

H3d: Social media opinion leaders' entertainment has a positive impact on perceived value.

The psychological state of flow experience describes the joy and enjoyment individuals derive from activities [57], which aligns closely with the impulsive nature of young people's buying tendencies. Research has found that flow experience directly and positively influences customers' purchase intentions on social networking sites (SNS) [44].

Research on the mediating role of flow experience has also extended into the tourism field. When examining the impact of mobile augmented reality (AR) apps on tourists' impulsive buying behavior, researchers found that flow experience mediates the relationship between the ease of use of mobile AR apps and user satisfaction [58]. This suggests that flow experience, as an emotional state of the organism, may positively influence young people's impulsive travel buying tendencies and mediate the impact of short-video opinion leaders on these tendencies. Therefore, the following hypotheses are proposed in this paper.

H4: Flow experience has a positive impact on young people's impulsive buying tendency.

H5: Flow experience mediates the relationship between social media opinion leaders and young people's impulsive buying tendency.

H5a: Flow experience mediates the relationship between the social media opinion leaders' professionalism and young people's impulsive buying tendency.

H5b: Flow experience mediates the relationship between the social media opinion leaders' interactivity and young people's impulsive buying tendency.

H5c: Flow experience mediates the relationship between the social media opinion leaders' homogeneity and young people's impulsive buying tendency.

H5d: Flow experience mediates the relationship between social media opinion leaders' entertainment and young people's impulsive buying tendency.

In recent years, the theory of perceived value has also been applied to analyzing online consumer behavior. Researchers suggest that under virtual purchasing conditions, perceived value encompasses emotional value, social value, functional value, and quality value [59]. It also includes hedonic value, which is driven by self-fulfillment, aesthetics, prestige, transaction, fun, fantasy satisfaction, escapism, and excitement [60-62]. In social media environments, environmental stimuli significantly influence consumers' perceived utilitarian and hedonic value. Perceived hedonic value significantly and directly impacts impulsive buying behavior. Moreover, the interaction between perceived hedonic value and interpersonal influence also significantly affects impulsive buying behavior [63].

It can thus be inferred that perceived value, as a cognitive state of the organism, may positively influence young people's impulsive travel buying tendencies and mediate the impact of short-video opinion leaders on these tendencies. Social media visual appeal comes from realistic sensory visuals and vivid interfaces that can capture viewers' interest [64]. There is no doubt that the young audience of social media platforms is visually attracted by the gamification of tourism activities displayed by opinion leaders, which makes the audience perceive the hedonic value of travel, which has been

confirmed by the researchers' research on the variables affecting impulse buying during live streaming [65]. Therefore, the following hypotheses are proposed in this paper.

H6: Perceived value has a positive impact on young people's impulsive buying tendency.

H7: Perceived value mediates the relationship between social media opinion leaders and young people's impulsive buying tendency.

H7a: Perceived value mediates the relationship between the social media opinion leaders' professionalism and young people's impulsive buying tendency.

H7b: Perceived value mediates the relationship between the social media opinion leaders' interactivity and young people's impulsive buying tendency.

H7c: Perceived value mediates the relationship between the social media opinion leaders' homogeneity and young people's impulsive buying tendency.

H7d: Perceived value mediates the relationship between the social media opinion leaders' entertainment and young people's impulsive buying tendency.

Taking into account the peculiarities of the tourism industry, in the context of tourism impulse buying, consumers' decisions are often driven by emotional arousal (e.g., dream destination appeal) rather than utilitarian calculus (e.g., price comparisons). Thus, we prioritized capturing the overarching value perception.

On the one hand, our theoretical model emphasizes the mediating role of flow experience as a holistic psychological state between self-presentation attributes of social media opinion leaders and impulsive buying. Prior studies [66,67] suggest that flow is more strongly associated with integrated perceived value rather than its sub-dimensions, as it reflects an immersive, non-decomposable engagement state.

On the other hand, to maintain parsimony in our structural model and avoid multicollinearity risks, for example, between hedonic value and entertainment self-presentation, we opted for a higher-order construct of perceived value. This approach aligns with recent studies on impulsive buying [68] that treat perceived value as a unified mediator.

Based on the development of the above assumptions and the logical relationship between variables, the following conceptual model is designed in this paper. Fig. 1 illustrates the conceptual model of this study, which is proposed and developed based on the SOR theory [38]. Literature analysis indicates that many researchers adopt the SOR model to explain impulsive buying behavior, making it one of the most commonly used theoretical frameworks for studying online impulsive buying [69].

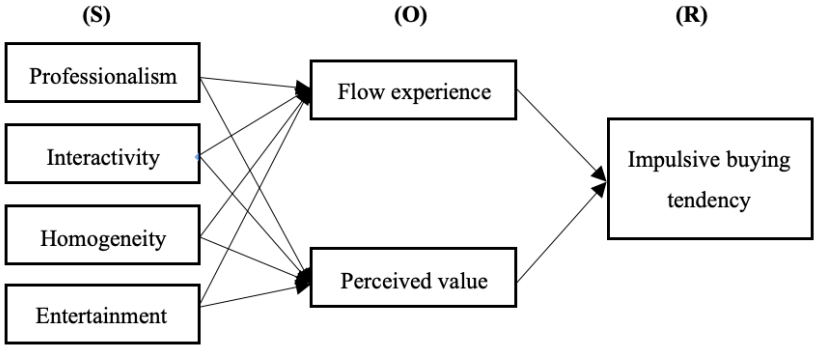

Fig. 1. Conceptual mode

The self-presentation of social media opinion leaders, as an external stimulus, is likely to influence young people's impulsive buying desires through stronger emotions, such as flow experience, and utilitarian cognitive states, such as perceived value. Considering that this study's topic involves the experiential nature of travel activities, the appeal of opinion leaders' self-

presentation, the transient nature of young people's emotions, and their immature consumption cognition, flow experience and perceived value are incorporated into the SOR model.

Based on the research theme of this study, it is proposed that the self-presentation of social media opinion leaders and its attributes (professionalism, interactivity, homogeneity, and entertainment) positively influence young people's impulsive travel buying tendencies. Furthermore, these influences occur through the emotional state (flow experience) and cognitive state (perceived value) of young people, impacting their impulsive buying tendencies.

3. Methodology

3.1 Research design

This study adopts a quantitative approach to investigate the factors influencing young people's impulsive travel buying tendencies. The survey design includes sample selection and questionnaire development. The research sample focuses on young consumers represented by university students. The questionnaire design is based on established scales proposed in existing literature, combined with the research topic to formulate measurement items. All measurement items are rated on a 5-point Likert scale.

This study consists of two phases: a preliminary study and an empirical study. The preliminary study includes variable measurement, questionnaire design, and validity assessment. As indicated in Table 1, the scale for measuring short video opinion leaders' self-presentation includes assessments of professionalism, interactivity, homogeneity, and entertainment [70-75].

Table 1
Short video opinion leaders' self-presentation scale

Variables	Measurement item and description	Relevant sources
Professionalism	ZY1. The opinion leader has been to many scenic spots. ZY2. The opinion leader has more professional knowledge of tourism. ZY3. The information of the short travel video is complete and detailed.	Netemeyer and Bearden [70]
Interactivity	HD1. The opinion leader has the ability to inspire the audience to watch. HD2. The content presented by the opinion leader makes me engage. (likes, comments, retweets, etc.). HD3. The opinion leader often responds positively and promptly to. some of his fans' comments. HD4. The opinion leader often carries out welfare activities for fans, such as lucky draws and bonus.	Lee et al., [71]
Homogeneity	TZ1. The opinion leader's taste and style are similar to mine. TZ2. The opinion leader's values are similar to mine. TZ3. The opinion leader's personality and interests are similar to mine.	Gilly [72]
Entertainment	QW1. The content presented by the opinion leader is relaxing and fun. QW2. The content presented by the opinion leader is enjoyable and exciting. QW3. What the opinion leader showed didn't bore me.	Torkzadeh and Dhillon [74]; Negash et al., [73,75]

As shown in Table 2, the measurement of flow experience assesses the internal state of short video viewers while watching, including elements such as the passage of time, attraction, focus, and engagement [4,76,77].

Table 2
Flow experience, perceived value, and Impulsive buying tendency scale

Variables	Measurement item and description	Relevant sources
Flow experience	XL1. When watching short videos, I feel like time flies by. XL2. When watching short videos, I feel completely absorbed. XL3. When watching short videos, I temporarily forget about. everything else around me. XL4. When watching short videos, I feel happily engaged.	Richard and Chebat [76]
Perceived value	GZ1. Through watching short videos, I feel that the tourism resources of this destination are excellent. GZ2. Through watching short videos, I think this destination is a great place worth visiting. GZ3. I like the image of the destination presented in the travel short videos. GZ4. I believe the travel destinations recommended by opinion leaders are reliable.	Sweeney and Soutar [77]
Impulsive buying tendency	CD1. After watching the opinion leader's short video, the desire to travel immediately is very strong. CD2. Before watching the opinion leader's short video, I had no intention of traveling to this place. CD3. After watching the opinion leader's short video, I felt an urge to travel to this place. CD4. After watching the opinion leader's short video, I would prioritize this place if I were to travel.	Beatty and Ferrell [4]

3.2 Data Collection and Sample

The formal survey combined online and offline methods (offline surveys used QR code scanning), using the Questionnaire Star platform to create the questionnaire. The survey began in Oct. 2023, utilizing social software such as WeChat and QQ for online distribution and conducting random surveys in Nanjing City in China. A total of 382 questionnaires were collected, with 345 valid responses, yielding a validity rate of 90.3%.

The university students are key group of investigating impulsive buying, as they highly engaged with influences like many researchers have studies [12]. As the sample of college students is a group with fixed characteristic attributes, such as low income (part-time job or parental support), their regional characteristics are not significant, and they are in a life stage where consumption habits are formed [78]. Therefore, although the sample of college students is not completely representative, it can still have the rationality of the sample.

As shown in Table 3, from the sample data, 36.5% were male, and 63.5% were female. According to the Global Digital Overview Report, women tend to search more on social software than men [66]. In terms of age distribution, Generation Z accounted for 69%. Regarding education level, 66.4% were undergraduates. Monthly living expenses of 2000-4000 RMB accounted for 44.3%, while those below 2000 RMB accounted for 27.8%, mainly because university students primarily rely on family financial support.

Table 3
Statistics of Demographic Variables

Demographic Characteristics	Item	Number	Percentage
Gender	Male	126	36.5%
	Female	219	63.5%
Age	post- 2005	36	10.4%
	post-2000	238	69.0%
	post-1995	57	16.5%
	post-1990	14	4.1%
Education	Associate degree	35	10.1%
	Bachelor degree	229	66.4%
	Master degree	62	18.0%
	Doctor's degree	19	5.5%
Income per month (RMB)	<2000yuan	96	27.8%
	2000-4000yuan	153	44.3%
	40001-6000yuan	73	21.2%
	>6000yuan	23	6.7%
Travel time per year	Almost none	22	6.4%
	1-2	162	47.0%
	3-5	115	33.3%
Short video browsing per day	>5	46	13.3%
	30min	44	12.80%
	30-60min	133	38.60%
	1-2h	111	32.20%
	>3h	57	16.50%

This study has considered the representativeness of the sample. The selection criteria for the sample are young consumers represented by university students who have a certain source of income (living expenses), are aged between 18 and 35 years, and use short video platforms daily. The term "university students" in this study specifically refers to those currently enrolled in higher education institutions, including associate degree students, undergraduates, master's students, and doctoral students.

The sampling process of this study starts from defining the university student population as the sampling range, and the sampling method adopts stratified sampling, stratified random sampling from the undergraduate, master's and doctoral student groups, and finally ensures that the sample covers the overall sampling range. On the one hand, this sample group is closely related to tourism consumption and is an important tourism consumer group, and on the other hand, this sample group is also an active user of social media.

From the perspective of demographics, young tourists are considered to be an attractive and powerful tourism segment that may influence many aspects of the tourism industry, higher education levels make young tourists' perceptions sensitive, and the value perception of their travel experience has a significant impact on their travel outcomes (overall satisfaction, word of mouth, and revisit intention) [8], and the online consumption habits of the younger generation are manifested in searching for travel information, looking for travel experiences of others, Planning one's own trip by accepting social media input [79], and even TikTok celebrities using presence and telepresence can enhance viewers' willingness to visit Chengdu, China [80].

3.3 Pre-research

To assess the validity of each variable in the questionnaire, a preliminary survey was conducted before the formal investigation. An online survey method was employed, with the questionnaire

created using the Wenjuanxing platform. The survey was distributed on September 1, 2023, through QQ groups, Weibo, and WeChat. Respondents had to meet the criteria of being university students and previous users of short-video platforms. Among the respondents, 24 were male (28.2%) and 61 were female (71.8%). The majority were undergraduates (77.6%), with a monthly income generally ranging between 2000-4000 RMB, accounting for approximately 47.1%. Within a week, 92 questionnaires were collected, and 85 valid responses were obtained, resulting in a valid response rate of 92%. Subsequently, SPSS 22.0 was used to analyze the reliability and validity of the questionnaire data.

Using SPSS 22.0, an overall reliability analysis was conducted on the 25 items in the questionnaire, along with individual reliability tests for each variable. Cronbach's α coefficient was used as the reliability test indicator. Generally, a higher Cronbach's α coefficient indicates greater internal consistency among the factors, reflecting relatively higher data reliability.

i. If Cronbach's α is below 0.7, the data is not considered reliable for research.
ii. If it is between 0.7 and 0.8, the data is acceptable.
iii. If it exceeds 0.8, the reliability of the data is high.

The reliability test for the overall scale showed a Cronbach's α coefficient of 0.904, indicating high reliability of the questionnaire. Additionally, the results revealed that the Cronbach's α coefficients for all variables exceeded 0.7, demonstrating excellent internal consistency for each variable, making the questionnaire suitable for subsequent research.

Validity analysis aims to evaluate whether the questionnaire measurement tool accurately measures the intended variables. Bartlett's test of sphericity and the KMO value are typically used to assess the validity of data for factor analysis. The calculations showed a KMO value of 0.810 for the overall scale, which is above the standard threshold of 0.7, indicating good sample adequacy and overall data quality suitable for factor analysis. Additionally, Bartlett's test of sphericity yielded an approximate chi-square value of 1099.202 with a significance level approaching 0 ($P < 0.01$), confirming the overall scale's suitability for factor analysis. Separate tests for each variable showed KMO values exceeding the standard threshold of 0.7, meeting the requirements for factor analysis. In Bartlett's test of sphericity, the approximate chi-square values were also highly significant ($P < 0.01$), demonstrating good validity for factor analysis. Furthermore, all measurement items for each variable had communalities greater than 0.5, and factor loadings exceeded 0.7, indicating good structural validity for the variable scales and effective measurement of the target variables.

3.4 Measurement

Normality testing. The analysis results in Table 4 show that the absolute values of skewness and kurtosis coefficients for all measurement items are within the standard range, indicating that the data for all measurement items approximately follow a normal distribution.

Table 4
Dimension description statistics and measurement item normality test results

	Item	Mean	Standard deviation	Skewness	Kurtosis	Population means	Population standard deviation
Professionalism	ZY1	3.72	1.085	-0.54	-0.387	3.6995	0.95551
	ZY2	3.70	1.126	-0.559	-0.575		
	ZY3	3.68	1.128	-0.497	-0.554		
Interactivity	HD1	3.73	1.125	-0.618	-0.458	3.7167	0.88899
	HD2	3.75	1.08	-0.502	-0.592		
	HD3	3.72	1.106	-0.528	-0.543		
	HD4	3.66	1.125	-0.449	-0.667		
Homogeneity	TZ1	3.86	1.069	-0.672	-0.231	3.83	0.89649
	TZ2	3.75	1.04	-0.569	-0.284		
	TZ3	3.88	1.07	-0.677	-0.452		
Entertainment	QW1	3.65	1.098	-0.424	-0.614	3.6686	0.92657
	QW2	3.66	1.099	-0.506	-0.373		
	QW3	3.70	1.079	-0.466	-0.476		
Flow experience	XL1	3.70	1.056	-0.518	-0.319	3.742	0.86062
	XL2	3.77	1.084	-0.532	-0.476		
	XL3	3.74	1.032	-0.433	-0.627		
	XL4	3.75	1.084	-0.592	-0.373		
Perceived value	GZ1	3.88	1.106	-0.73	-0.426	3.8833	0.9078
	GZ2	3.92	1.089	-0.817	-0.169		
	GZ3	3.88	1.051	-0.621	-0.334		
	GZ4	3.86	1.116	-0.77	-0.282		
Impulsive buying tendency	CD1	3.79	1.137	-0.581	-0.606	3.758	0.91466
	CD2	3.78	1.085	-0.549	-0.51		
	CD3	3.79	1.098	-0.479	-0.791		
	CD4	3.66	1.155	-0.444	-0.714		

Reliability testing. Before constructing the structural equation model, reliability testing of the questionnaire variables is required. Reliability analysis is used to examine the internal consistency of items for each construct used in the research model. The reliability test for the overall scale yielded a Cronbach's α coefficient of 0.905, which exceeds 0.9, indicating excellent overall reliability of the questionnaire. Separate reliability tests were conducted for each variable, as shown in Table 5.

Table 5
The reliability testing of each variable in the questionnaire

Variable name	Item	Cronbach's Alpha with item deleted	Cronbach's Alpha of each variable
Professionalism	ZY1	0.758	0.821
	ZY2	0.748	
	ZY3	0.755	
Interactivity	HD1	0.788	0.814
	HD2	0.746	
	HD3	0.763	
	HD4	0.770	
Homogeneity	TZ1	0.710	0.801
	TZ2	0.707	
	TZ3	0.769	

Table 5
Continued

Variable name	Item	Cronbach's Alpha with item deleted	Cronbach's Alpha of each variable
Entertainment	QW1	0.747	0.805
	QW2	0.730	
	QW3	0.724	
Flow experience	XL1	0.773	0.823
	XL2	0.746	
	XL3	0.798	
	XL4	0.790	
Perceived value	GZ1	0.817	0.852
	GZ2	0.795	
	GZ3	0.823	
	GZ4	0.813	
Impulsive buying tendency	CD1	0.773	0.834
	CD2	0.785	
	CD3	0.792	
	CD4	0.812	

Validity testing. As shown in Fig. 2, this study used AMOS 21.0 to construct a CFA model for all variables and assess the suitability of the measurement model to ensure satisfactory overall fit. Commonly used fit indices and their ideal ranges were utilized to evaluate the degree of fit between the structural equation model and the observed data, thereby determining the model's quality and reliability.

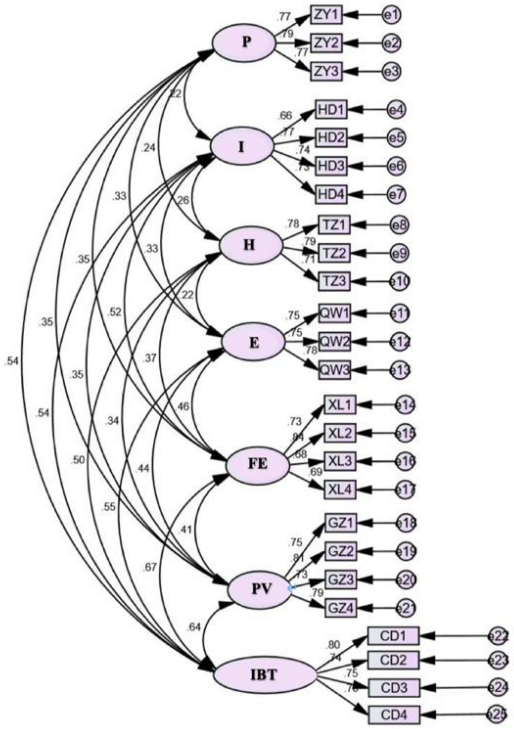

Fig. 2. CFA model

Note: P- Professionalism, I- Interactivity, H- Homogeneity, E- Entertainment, FE- Flow experience, PV- Perceived value, IBT- Impulsive buying tendency.

The CFA fit indices result for this study are shown in Table 6. In Table 6, CMIN/DF (Chi-square/degree of freedom ratio) = 1.037, which falls within the acceptable range of 1-3; RMSEA (Root Mean Square Error of Approximation) = 0.010, which is within the excellent range of <0.05. Additionally, the results for AGFI, CFI, NFI, and GFI all reached excellent levels above 0.9. Therefore, the test results indicate that the model has a good fit.

Table 6
CFA model fit evaluation

Indicators	Benchmark criteria	Empirical results
CMIN/DF	1-3 is excellent, 3-5 is good	1.037
RMSEA	<0.05 is excellent, <0.08 is good	0.010
AGFI	>0.9 is excellent, >0.8 is good	0.928
CFI	>0.9 is excellent, >0.8 is good	0.997
NFI	>0.9 is excellent, >0.8 is good	0.933
GFI	>0.9 is excellent, >0.8 is good	0.943

According to the results in Table 7, the AVE values for each dimension are between 0.5 and 0.6, and the CR values are all greater than 0.8, indicating that each dimension has good convergent validity and composite reliability.

Table 7
Convergent validity and composite reliability testing for each dimension of the scale

Path relationships			Estimate	AVE	CR
ZY1	<---	Professionalism	0.771	0.6053	0.8215
ZY2	<---	Professionalism	0.789		
ZY3	<---	Professionalism	0.774		
HD1	<---	Interactivity	0.659	0.5262	0.8158
HD2	<---	Interactivity	0.769		
HD3	<---	Interactivity	0.744		
HD4	<---	Interactivity	0.725		
TZ1	<---	Homogeneity	0.784	0.5769	0.8032
TZ2	<---	Homogeneity	0.785		
TZ3	<---	Homogeneity	0.707		
QW1	<---	Entertainment	0.750	0.5798	0.8054
QW2	<---	Entertainment	0.753		
QW3	<---	Entertainment	0.781		
XL1	<---	Flow experience	0.729	0.5418	0.8245
XL2	<---	Flow experience	0.835		
XL3	<---	Flow experience	0.681		
XL4	<---	Flow experience	0.689		
GZ1	<---	Perceived value	0.748	0.5916	0.8526
GZ2	<---	Perceived value	0.811		
GZ3	<---	Perceived value	0.728		
GZ4	<---	Perceived value	0.787		
CD1	<---	Impulsive buying tendency	0.795	0.5602	0.8357
CD2	<---	Impulsive buying tendency	0.737		
CD3	<---	Impulsive buying tendency	0.754		
CD4	<---	Impulsive buying tendency	0.705		

According to the analysis results in Table 8, the square root of the AVE for each latent variable exceeds the correlations between it and other variables. This indicates that the study has achieved good discriminant validity among the different variables.

Table 8
Results of discriminant validity testing for each dimension of the scale

Variable	Professionalism	Interactivity	Homogeneity	Entertainment	Flow experience	Perceived value	Impulsive buying tendency
Professionalism	0.605						
Interactivity	0.222	0.526					
Homogeneity	0.242	0.263	0.577				
Entertainment	0.325	0.335	0.219	0.580			
Flow experience	0.351	0.522	0.372	0.462	0.542		
Perceived value	0.350	0.346	0.339	0.436	0.411	0.592	
Impulsive buying tendency	0.541	0.537	0.499	0.551	0.673	0.644	0.560
Square root of AVE	0.778	0.725	0.760	0.761	0.736	0.769	0.748

Note: The diagonal contains the AVE for each variable, while the values below the diagonal represent the correlations between the variables.

4. Results and Discussion

4.1 Correlation Analysis Results

In this study, Pearson correlation analysis was employed using SPSS 22.0 to quantify the relationships between multiple variables. Significant positive correlations were observed between the professionalism, interactivity, homogeneity, and entertainment of social media opinion leaders' self-presentation and young people's flow experience and perceived value. Additionally, significant positive correlations were found between flow experience, perceived value, and impulsive travel buying tendencies.

As shown in Table 9, the correlation coefficients for all variable pairs are greater than 0, and the corresponding PP-values are all less than 0.001, indicating significant positive correlations between the variables.

Table 9
The Pearson Correlation Analysis Results Between Various Dimensions

Dimensions	P	I	H	E	FE	PV	IBT
Professionalism (P)	1						
Interactivity (I)	0.178**	1					
Homogeneity (H)	0.196**	0.220**	1				
Entertainment (E)	0.262**	0.270**	0.180**	1			
Flow Experience (FE)	0.293**	0.419**	0.292**	0.384**	1		
Perceived Value (PV)	0.289**	0.288**	0.287**	0.363**	0.349**	1	
Impulsive buying tendency (IBT)	0.445**	0.447**	0.417**	0.456**	0.560**	0.544**	1

Note: ** at 0.01 level (double tail), significant correlation.

According to Table 9, a weak correlation (r=0.180) suggests that homogeneity and recreation are substantially different but not completely unrelated. The reasons for the weak correlation are complex. In addition to the reasons for variables, it may also be the reason for the small sample size.

On the one hand, according to the theory, Homogeneity (H) reflects social identity alignment (e.g., "This opinion leader shares my values"), rooted in self-categorization theory [81].

Entertainment (E) captures hedonic enjoyment (e.g., "This content is fun for opinion leaders "), tied to affective engagement models [82]. This shows the difference in the nature of constructs.

On the other hand, existing literature studies confirm that prior studies found similar low correlations between store atmosphere and curiosity (R^2=0.038), surprise and curiosity (R^2=0.022), which indicates weak explanatory power (R^2 < 0.09) [34]. In another study, there was also A moderately weak correlation (R = 0.49) between the measurements between the variables, indicating that the variables in the literature had limited joint predictive power for the impulse purchases studied [83].

4.2 Structural Equation Model Validation

To systematically test the research hypotheses of this paper, a structural equation model (SEM) was used for verification. Therefore, the quality of the obtained data is relatively high, allowing for subsequent structural equation analysis.

Structural Equation Modeling (SEM) provides an in-depth understanding of the underlying mechanisms behind phenomena by modeling the relationships between variables. This approach not only tests and establishes relationships between variables but also simultaneously considers multiple causal relationships and measurement errors, offering a comprehensive and profound investigation of the research subject. In this paper, AMOS 21.0 was used to construct the structural equation model, as shown in Fig. 3.

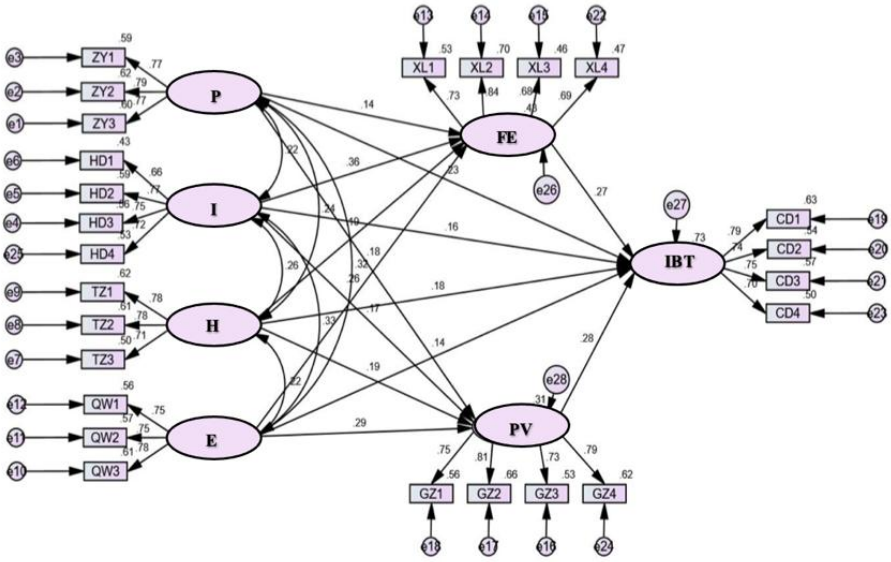

Fig. 3. Structural Equation Model

Note: P- Professionalism, I- Interactivity, H- Homogeneity, E- Entertainment, FE- Flow experience, PV- Perceived value, IBT- Impulsive buying tendency.

Structural equation model fit test. Before conducting path analysis of the data, it is necessary to assess the fit of the structural equation model. The results of the fit test for the structural equation model in this study are shown in Table 10.

Table 10
Structural Equation Model Fit Assessment

Indicators	Benchmark criteria	Empirical results
CMIN/DF	1-3 is excellent, 3-5 is good.	1.040
RMSEA	<0.05 is excellent, <0.08 is good.	0.011
AGFI	>0.9 is excellent, >0.8 is good.	0.927
CFI	>0.9 is excellent, >0.8 is good.	0.997
NFI	>0.9 is excellent, >0.8 is good.	0.932
GFI	>0.9 is excellent, >0.8 is good.	0.943

Structural equation model path relationship test. As shown in Table 11, This study uses Amos 21.0 to analyze the path relationships in the structural equation model. The test results show the information of path relationship, path coefficients, Standard Error (S.E.), critical ration (C.R.) and P.

Table 11
The Test Results of Structural Equation Modeling Path Relationship

Path Relationship			Path Coefficients	S.E.	C.R.	P
Flow experience	<---	Professionalism	0.145	0.053	2.391	0.017
Perceived value	<---	Professionalism	0.176	0.056	2.777	0.005
Flow experience	<---	Interactivity	0.356	0.061	5.481	***
Perceived Value	<---	Interactivity	0.167	0.059	2.601	0.009
Flow Experience	<---	Homogeneity	0.190	0.062	3.131	0.002
Perceived Value	<---	Homogeneity	0.193	0.064	3.025	0.002
Flow Experience	<---	Entertainment	0.259	0.060	3.945	***
Perceived Value	<---	Entertainment	0.285	0.062	4.157	***
Impulsive buying tendency	<---	Professionalism	0.226	0.054	4.353	***
Impulsive buying tendency	<---	Interactivity	0.157	0.061	2.829	0.005
Impulsive buying tendency	<---	Homogeneity	0.179	0.061	3.503	***
Impulsive buying tendency	<---	Entertainment	0.141	0.060	2.526	0.012
Impulsive buying tendency	<---	Flow experience	0.266	0.075	4.136	***
Impulsive buying tendency	<---	Perceived value	0.282	0.067	4.951	***

Note: ***indicates significant at P<0.001.

The results show that professionalism (β=0.226, P<0.001; β=0.145, P=0.017; β=0.176, P=0.005), interactivity (β=0.157, P=0.005; β=0.356, P<0.001; β=0.167, P=0.009), homogeneity (β=0.179, P<0.001; β=0.190, P=0.002; β=0.193, P=0.002), and entertainment (β=0.141, P=0.012; β=0.259, P<0.001; β=0.285, P<0.001) each have a significant positive impact on impulsive buying tendency, flow experience, and perceived value (all P<0.05). Consequently, social media opinion leaders' self-presentation significantly influences young people's impulsive buying behavior (H1), flow experience (H2), and perceived value (H3). Furthermore, flow experience (β=0.266, P<0.001) and perceived value (β=0.282, P<0.001) both positively affect impulsive buying tendency, supporting H4 and H6.

4.3 Mediating Effect of Flow Experience and Perceived Value

The results of the path relationship test indicate significant findings. Further investigation is needed to determine the presence of mediation effects. This study uses the built-in syntax of AMOS to assign values to all relevant paths for calculating specific standardized mediation effects. Using the Bootstrap method with 5000 iterations and a 95% confidence interval standard, the results are presented in Table 12.

Table 12
The Test Results of Mediating Effect

Path	Effect Value	Lower	Upper	P
Professionalism - Flow Experience - Impulsive Buying Tendency	0.040	0.007	0.096	0.015
Interactivity - Flow Experience - Impulsive Buying Tendency	0.104	0.047	0.186	0.001
Homogeneity - Flow Experience - Impulsive Buying Tendency	0.060	0.018	0.137	0.002
Entertainment - Flow Experience - Impulsive Buying Tendency	0.074	0.032	0.137	0.001
Professionalism - Perceived Value - Impulsive Buying Tendency	0.051	0.015	0.098	0.004
Interactivity - Perceived Value - Impulsive Buying Tendency	0.051	0.015	0.108	0.008
Homogeneity - Perceived Value - Impulsive Buying Tendency	0.065	0.019	0.128	0.005
Entertainment - Perceived Value - Impulsive Buying Tendency	0.086	0.041	0.154	0.000

The results show that flow experience significantly mediates the relationships between professionalism (effect=0.040, 95% CI [0.007, 0.096]), interactivity (effect=0.104, 95% CI [0.047, 0.186]), homogeneity (effect=0.060, 95% CI [0.018, 0.137]), and entertainment (effect=0.074, 95% CI [0.032, 0.137]) and impulsive buying tendency. In each case, the confidence interval does not include zero, indicating significant mediating effects. The effect values for professionalism, interactivity, homogeneity, and entertainment are 0.040, 0.104, 0.060, and 0.074, respectively. Thus, flow experience clearly explains how these dimensions of self-presentation influence impulsive buying tendency, supporting hypotheses H5a, H5b, H5c, and H5d. This confirms that these factors indirectly affect impulsive buying through flow experience.

The results also show that perceived value significantly mediates the relationships between professionalism (effect=0.051, 95% CI [0.015, 0.098]), interactivity (effect=0.051, 95% CI [0.015, 0.108]), homogeneity (effect=0.065, 95% CI [0.019, 0.128]), and entertainment (effect=0.086, 95% CI [0.041, 0.154]) and impulsive buying tendency. Because each confidence interval excludes zero, the mediating effects are significant, supporting H7a, H7b, H7c, and H7d. This finding indicates that perceived value explains how each dimension of self-presentation influences impulsive buying behavior. The effect values confirm that these dimensions indirectly shape consumer impulses by increasing perceived value, which leads to heightened impulsive buying tendencies.

Previous theories of perceived value emphasize that consumers will comprehensively weigh benefits and costs [84]. The results of this paper show that in the social media environment, this rational benefit trade-off may be weakened by the emotional rendering of opinion leaders, resulting in the impact of impulsive emotions on users' cognitive assessment.

The flow theory of Csikszentmihalyi, M. (1990) [66] points out that when individuals are fully engaged in an activity, they ignore the passage of time and external disturbances, thus enhancing impulsive behavior. The results of this study are consistent with the research on network flow, that is, high interactivity and entertainment are easy to trigger users' immersive experience, and then promote impulse consumption [85].

4.4 Discussion

All 22 hypotheses are validated, confirming the mediating roles of flow experience and perceived value. Professionalism more strongly influences impulsive buying than interactivity,

homogeneity, and entertainment, reflecting young consumers' need for expert information. It also affects perceived value more than flow experience, indicating a stronger cognitive influence. Interactivity most powerfully affects flow experience, enhancing emotional connection. Homogeneity slightly favors perceived value, while entertainment surpasses all attributes in driving perceived value. Both flow experience and perceived value significantly impact impulsive buying, with perceived value slightly stronger. Overall, professionalism and entertainment are key determinants, and cognitive factors outweigh emotional ones in driving impulsive travel buying.

The research findings indicate that the self-presentation attributes of social media opinion leaders have distinct characteristics and varying degrees of influence. Under the condition of short videos, the professionalism, homogeneity, and entertainment of opinion leaders are more capable of affecting perceived value, which includes emotional value, social value, functional value, and quality value [58]. Regarding the factors influencing young people's impulsive travel buying tendencies, the professionalism and entertainment of social media opinion leaders emerge as key determinants. Although both flow experience and perceived value mediate the influence of social media opinion leaders on young people's impulsive travel buying tendencies, perceived value exerts a slightly stronger effect. This suggests that the cognitive state of the organism has a greater impact compared to its emotional state.

Literature studies have shown that dual-process theory is a theory used in psychology to explain human decision-making and behavior processes, which explains why human behavior is bounded rational [86,87]. Human decision making and behavior are driven by two systems, System 1 (fast, automatic, emotionally driven) and System 2 (slow, rational, cognitively driven). The process of System 1 relies on embodied predictive processing, and the process of System 2 is accomplished through symbolic classical cognition [88]. In the research model of this paper, Flow Experience represents the emotionally driven path (System 1), while Perceived Value represents the cognitive assessment path (System 2).

System 1 represents an emotionally driven path: flow experiences - impulse purchases. The data measured in this paper show that the influence of self-presentation attributes of social media opinion leaders, such as professionalism (β=0.145), interactivity (β=0.356), homogeneity (β=0.190) and entertainment (β=0.259), can significantly enhance flow experience. Flow experience further strongly influenced impulse buying tendency (β=0.266, $p<0.001$), indicating that users in the emotional immersion state are more likely to make rapid, irrational purchase decisions. Mediating effects (entertainment -- flow experience -- impulse buying, effect size 0.074) further validated this path.

System 2 represents the path of rational evaluation: Perceived value - impulse buying. The data measurement results of this paper show that the influence of self-presentation of social media opinion leaders, professionalism (β=0.176), interactivity (β=0.167), homogeneity (β=0.193), entertainment (β=0.285) can improve the perceived value. Moreover, the effect of perceived value on impulse buying tendency (β=0.282) was even slightly higher than that of flow experience, indicating that young people still weigh product value to some extent, but ultimately still lead to impulsive behavior, indicating that system 2 is partially involved, but does not completely inhibit system 1. The mediating effect (entertainment -- perceived value -- impulse buying, effect size 0.086) suggests that entertainment content may indirectly promote impulse buying by reducing users' rational defenses.

The contrastive analysis of path intensity showed that the total effect size of affective path (flow experience) (e.g., the mediating effect of entertainment through flow =0.074) was close to that of cognitive path (the mediating effect of perceived value =0.086), but the direct effect of perceived value (β=0.282) was slightly higher than that of flow experience (β=0.266). In the context of the influence of social media opinion leaders on impulse buying set up in this paper, system 2 does not

completely suppress impulse, but may accelerate purchasing decision by "rationalizing" impulse. This is different from the hypothesis of "System 2 inhibits system 1" in the traditional two-process theory, and reflects the particularity of the social media environment, such as the trust endorsement of opinion leaders (professionalism, homogeneity) will weaken the rational criticism of users.

Path synergy analysis shows that social media has influenced impulse buying through both flow experience (β=0.259) and perceived value (β=0.285), indicating that highly entertaining self-presented content can simultaneously activate emotional and cognitive pathways and form a synergistic impulse buying strategy. The findings of this study extend the reflection-impulsive Model [89], revealing that in the context of social media, the two types of systems are likely to promote synergistically rather than inhibit each other.

However, the study design in this paper is limited to cross-sectional design and does not consider longitudinal verification. Literature research shows that cross-sectional mediation analysis is widely adopted in initial studies of consumer behavior [90], especially when examining novel mechanisms (e.g., flow experience in influencer marketing).

The research primarily focused on examining the direct and mediated pathways (self-presentation traits -- flow/perceived value -- impulsive buying) to establish a foundational understanding of how social media opinion leaders' self-presentation influences young consumers psychology. While cultural values like face consciousness may interact with these mechanisms, testing such moderation effects would require: a priori theoretical framing of specific cultural dimensions [91], a validated scale to measure these cultural traits [52,92], and sufficient statistical power for detecting interaction effects, which our sample size was not originally designed for.

5. Conclusions

This study's findings confirm the SOR model's relevance for explaining impulsive buying on social media. The self-presentation of short-video opinion leaders (stimuli) affects young people's flow experience and perceived value (organisms), boosting their impulsive buying tendencies (responses). Short-video browsing notably influences youth consumption, with opinion leaders shaping purchase decisions. The four-dimensional characteristics of opinion leaders (professionalism, interaction, homogeneity and entertainment) affect users' impulse purchase decisions through differentiated paths, and also enrich the detailed application of SOR model in social media.

The theoretical significance of this paper is that it verifies the applicability of the dual-process theory in social e-commerce, and reveals a new mechanism of possible synergistic interaction between system 1 (emotion) and system 2 (cognition), providing empirical support for the dual-process theory in a new context. The research also shows that according to the dual-path theory, the research results of this paper find the phenomenon of dual-path equilibrium in media environment, that is, the effect size of emotion and cognition is close to each other, which reflects that social media opinion leaders can influence users through both emotional immersion (flow) and value rationalization (perceived value), highlighting the complexity of social media content creation and interaction.

The practical significance of this study lies in providing insights for content creation by social media users. In the digital media era, the influence and appeal of opinion leaders are closely tied to the attributes of their self-presentation. The professionalism, interactivity, homogeneity, and entertainment of opinion leaders positively impact the perceived value and flow experience of young audiences. This, in turn, enhances online and offline interaction, facilitates information dissemination, and fosters positive experiences. Previous literature also confirms the relationship between youth and online purchases. A study of a sample of UK university students found a significant association between age and general Internet use, but not gender. This shows that young

people's online impulse buying motivation is related to youth without gender difference. Online purchases are motivated by the need for individuals to seek to enhance their emotions and identities, and there is no gender difference in motivation [33].

The practical significance of this study also lies in providing guidance to young people on managing irrational consumption. Influenced by social media opinion leaders, excessive engagement in social media interactions may lead to social media addiction, brand addiction, or impulsive consumption [37], potentially causing psychological or financial burdens for young individuals. Therefore, this study suggests or calls on schools, social organizations, or social media users to appropriately remind young people to consume rationally and within their means. Additionally, social media platform operators could use technical means to identify high-impulse shoppers and adopt appropriate measures to offer diverse options and guide them toward rational consumption.

While this study produces meaningful research results and provides theoretical validation and practical implications, it still has its limitations.

First, the sample comprises mainly Chinese university students; a broader, more diverse sample would enhance generalizability. The representativeness of the samples in this paper also reflects certain limitations, and the samples of non-students and groups from other regions are not taken into account.

In future studies, the authors will continue to focus on the changes in the digital consumption patterns of young consumer groups, and expand the research object to other young groups.

Second, although we confirmed the two mediators' significance, this paper did not explore sub-dimensions (e.g., hedonic vs. utilitarian value) in great detail. Future studies could adopt multidimensional frameworks for both flow experience and perceived value, yielding deeper insights.

The theoretical model emphasizes the mediating role of flow experience as a holistic psychological state between self-presentation attributes of social media opinion leaders and impulsive buying. Prior studies suggest that flow is more strongly associated with integrated perceived value rather than its sub-dimensions, as it reflects an immersive, non-decomposable engagement state. In addition, to maintain parsimony in our structural model and avoid multicollinearity risks, for example，between hedonic value and entertainment self-presentation, we opted for a higher-order construct of perceived value. This approach aligns with recent studies on impulsive buying [68] that treat perceived value as a unified mediator.

It is worth noting that the findings may reflect latent cultural value influences. For example, Chinese users' heightened sensitivity to social media opinion leaders' credibility (professionalism) could stem from face culture's emphasis on authority endorsement [93].

Future research will consider cultural value (e.g., face culture) as a moderating variable and examine its impact on various relationships. For instance, the positive effect of social media opinion leaders' homophily on flow experience could be amplified in high face-conscious consumers, as aligning with 'ingroup' opinion leaders may reduce social risk [94].

Third, for the cross-sectional design of this paper, this is also a limitation, and longitudinal verification is not considered. A longitudinal design would be ideal to establish temporal precedence between social media opinion leaders' self-presentation -- flow experience/perceived value -- impulse buying, as it could rule out alternative causal directions.

Future research should employ longitudinal data to validate the temporal sequence of our proposed mediation model, such as by measuring flow and perceived value after influencer exposure but before purchase decisions.

Author Contributions

Conceptualization, Q.Q.F. and Y.T.Y.; methodology, Y.T.Y.; software, Y.T.Y.; validation, Y.T.Y. and Q.Q.F.; formal analysis, Q.Q.F.; investigation, Y.T.Y.; resources, Y.T.Y.; data curation, Y.T.Y.; writing—original draft preparation, Y.T.Y.; writing—review and editing, Q.Q.F.; visualization, Y.T.Y.; supervision, Q.Q.F.; project administration, Y.T.Y.; funding acquisition, Q.Q.F. All authors have read and agreed to the published version of the manuscript.

Funding

This research received no external funding.

Data Availability Statement

All data generated or analyzed during this study are included in this published article and its supplementary information files.

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical approval and informed consent statements

The Ethics Committee of the Nanjing University of Finance & Economics waived the need for ethics approval and respondents consent for the collection, analysis, and publication of the retrospectively obtained and anonymised data for this non-interventional study.

Acknowledgement

This research was not funded by any grant.

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