

A Study on the Relationship between Incidental Exposure and the Adoption intention of Knowledge-Based Short Video

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Abstract. In the age of information overload, incidental exposure has become an important alternative route for accessing information. However, in the setting of knowledge-based short videos, the underlying mechanisms through which incidental exposure specifically influences users' information adoption intention remain to be further explored. Based on the Cognitive-Affective Personality System (CAPS) theory, this study focuses on the roles of perceived usefulness (cognitive pathway) and fear of missing out (emotional pathway), and introduces user curiosity as a moderating variable. Using a sample of 152 college students who completed an online questionnaire, this paper empirically tested our hypotheses. The research findings are presented as follows as follows. First, incidental exposure is significantly positively correlated with the willingness to adopt knowledge-based short videos; second, perceived usefulness and fear of missing out both play partial mediating roles, forming competing mediating pathways; third, user curiosity negatively moderates the relationship between incidental exposure and perceived usefulness, whilst positively moderating the relationship between incidental exposure and fear of missing out. This study enriches the research content on social media exposure modes, unpacks the 'black box' through which how incidental exposure influences information adoption intention, and offers practical insights for content recommendation and user psychological intervention in the context of knowledge-based short videos.

Keywords: Incidental exposure, information adoption intention, knowledge-based short videos, fear of missing out, CAPS theory.

1. Introduction

"We are inundated with information, yet we crave knowledge." This famous quote by sociologist John Naisbitt aptly captures the current situation of contemporary social media users. In today's environment of information overload, users are gradually shifting from 'seeking out information' to 'information seeking them out'. When confronted with knowledge-based information encountered by chance, whether users adopt or avoid it has become a question worthy of study.

Based on theoretical frameworks such as Social Cognitive Theory and the Unified Theory of Acceptance and Use of Technology (UTAUT), existing research on information adoption has explored a variety of domains, such as healthcare, knowledge dissemination and e-commerce. Furthermore, prior research has also investigated the impacts of information characteristics (Sussman & Siegal, 2003 [1]; Cheung, Lee, & Rabjohn, 2008 [2]), information publisher (Ohanian, 1990 [3]; Filieri, 2015 [4]), social environment (Venkatesh & Davis, 2000 [5]; Cheung & Thadani, 2012 [6]), as well as technological characteristics (DeLone & McLean, 2003 [7]; Kietzmann et al., 2011 [8]) on users' information adopt intention. In particular, with the proliferation of social media platforms, researchers have extended their focus to this emerging medium, exploring the patterns of information adoption and user behaviour on short-video platforms. For instance, Alalwan et al. (2017) [9] found that the interactivity, entertainment value and conformity of social media are key factors influencing users' information adoption and sharing behaviour; with regard to short-video platforms, Bai et al. (2022) [10] noted that the visual appeal of videos, the emotional impact of music and the credibility of creators have a significant positive influence on users' willingness to like, comment on and share content.

Despite these significant findings, existing research still suffers from the following three limitations and shortcomings. First, given the specialised and complex nature of knowledge content, users may exhibit distinct patterns of information exposure with knowledge-based short videos on

social media platforms. However, existing research largely treats users' information exposure as a homogeneous, unified process, or merely categorises scenarios in general terms (Scharkow et al., 2020 [11]; Swart, 2023 [12]), with little attention paid to how incidental exposure shapes individuals' willingness to adopt knowledge-based information. Based on differences in the information-seeking's initiative and purposefulness, information exposure can be categorised into two types: active seeking, referring to targeted searching and follow behaviours driven by clear user objectives, and passive serendipity, which occurs when users encounter content by algorithmic recommendations or social sharing without explicit expectations. In particular, passive incidental exposure may present users with unexpected knowledge. Consequently, future research should explore the impact of passive incidental exposure on users' information adoption intention toward knowledge-oriented short video, thereby enhancing the precision and explanatory power of existing theories.

Second, previous research on information adoption intentions has largely focused on the influence of cognitive factors, rarely analysing the differential mechanisms underlying social media information exposure from cognitive and emotional pathways. Existing research frameworks (such as UTAUT) and most empirical studies primarily follow a cognition-dominated rational analytical approach, emphasising the impact of cognitive factors such as information usefulness, usability and quality on adoption intentions. As a media format that relies heavily on audio-visual perception and strong emotional responses, users' emotional experiences play a role of at least equal importance in their information evaluation and adoption decisions. However, current research lacks systematic integration and in-depth analysis of how the affective pathway influences information adoption, either independently or in interaction with the cognitive pathway. Particularly in situations of passive incidental exposure, emotional reactions often serve as a precursor to information exposure and deep cognitive processing. Ignoring this dimension makes it difficult to fully understand the complex psychology of information adoption among users within the entertaining and socialised atmosphere of short videos. Therefore, it is necessary to comprehensively reveal users' information adoption decision-making processes through dual cognitive-affective pathways, based on the Cognitive-Affective Personality System Theory [13].

Thirdly, the role of information exposure methods depends on the specific context. For knowledge-based short videos, the audience exert become an important context and the moderating effects of user characteristics require further exploration. In particular, cognitive curiosity is a crucial trait that drives users to seek information and knowledge. As a key driving force behind individuals' efforts to bridge information gaps and construct new cognition, cognitive curiosity is a critical factor influencing user experience and perceptions. Therefore, future research should integrate media and user characteristics to examine the impacts arising from the attributes of knowledge publishers and audiences.

Against these backdrops, this study aims to investigate how incidental exposure influences users' information adoption intention by incorporating perceived usefulness and fear of missing out (FoMO) as mediating variables, user curiosity as a moderator from the Cognitive-Affective Personality System Theory [13].

2. Theoretical Framework and Hypotheses

2.1. Cognitive-Affective Personality System Theory

The Cognitive-Affective Personality System Theory (CAPS) was proposed by Mischel and Shoda in 1995 [13]. It posits that an individual's behaviour is the product of dynamic interaction between situational stimuli and the individual's internal cognitive-affective units (CAUs), rather than solely determined by stable personality traits or the external environment (Mischel & Shoda, 1995 [13]). CAPS integrates cognition (e.g., beliefs, expectations and goals) with affective components (e.g., emotions, evaluations) into a unified dynamic system. It emphasises that external situational stimuli activate and mobilise specific configurations of cognitive-affective units in individuals, and these units form dynamic activation and feedback loops through interconnected networks, ultimately

guiding the generation of specific behaviours. This mechanism highlights the dependence of behaviour on the psychological representation of situations, and establishes the central mediating role of internal processing in person-situation interactions.

Currently, CAPS theory has been applied to multiple fields such as including organisational citizenship behaviour, consumer behaviour, and information behaviour, providing a systematic perspective for explaining individual behavioral differences in complex contexts. The core rationale for introducing CAPS theory into the study of information adoption behavior of knowledge-based short videos is that its inherent explanatory power regarding the dynamic interaction between the situation and individual psychological processes strengths precisely align with the multi-dimensional and dynamic characteristics of this behavior. The information adoption process for knowledge-based short videos involves not only cognitive judgements regarding information quality and source credibility, but also emotional responses such as interest and trust. In addition, it is moderated by platform-specific contexts such as algorithmic recommendation and social interaction on short video platforms. The CAPS theory [13] provides a suitable analytical framework for this research, facilitating the construction of a theoretical model that integrates ‘situational stimuli—cognitive and emotional mediation—information adoption behaviour’. This enables a comprehensive and dynamic explanation of the internal psychological mechanisms underlying users’ information adoption behaviour when engaging with knowledge-based short videos.

This study, on the one hand, expands the application boundary of CAPS theory to the digital media and information behaviour; on the other hand, it provides robust theoretical support for in-depth understanding of the patterns of knowledge acquisition and adoption among users in the new media environment.

2.2. Hypotheses

2.2.1. The relationship between incidental exposure and the adoption intention of knowledge-based short videos

Incidental exposure refers to an information exposure mode whereby users accidentally encounter information/knowledge when social media browsing. In the context of browsing knowledge-based short videos, incidental exposure enable users to gain an understanding of relevant knowledge and its practical applications. Specifically, incidental exposure highlights the serendipitous discovery of valuable information during information seeking, which often evokes a sense of surprise in users. Furthermore, through the repeated exposure effect and social influence mechanisms inherent in social media, incidental exposure may subtly influence users’ attitudes towards this type of knowledge. Therefore, this study proposes the following hypothesis.

H1. Incidental exposure is positively correlated with the adoption intention of knowledge-based short video.

2.2.2. The mediating role of perceived usefulness

On the one hand, incidental exposure to knowledge, technical applications, case studies and the other content on social media can enhance users’ perceived usefulness of knowledge. On the other hand, when users encounter knowledge-based short videos by chance, they often process superficial information based on emotional associations without engaging in in-depth cognitive elaboration, which in turn reinforces their perceived usefulness of the knowledge.

Furthermore, the stronger the perceived usefulness, the higher users’ evaluation of the value of knowledge-based short videos, making them more likely to develop a positive attitude and ultimately adoption intention. Furthermore, users are inherently motivated to adopt valuable, relevant knowledge to improve the efficiency and effectiveness of their learning and work. Moreover, the mediating role of perceived usefulness has been extensively documented in prior research. For instance, Mensah et al. (2022) [14] found that the convenience of e-government services and information quality can influence users’ information adoption intention through perceived usefulness. Therefore, this study posits that:

H2a. Incidental exposure is positively correlated with perceived usefulness

H2b. Perceived usefulness is positively correlated with the adoption intention of knowledge-based short video.

H2c. Perceived usefulness partially mediates the relationship between serendipitous exposure and the adoption intention of knowledge-based short video.

2.2.3. The mediating role of FoMO

The inherent randomness of information acquisition via incidental exposure means that users have no prior knowledge of the upcoming video before exposure. Consequently, users hold low expectations regarding the content, which in turn prevents the arousal of anxiety. In other words, incidental exposure is negatively correlated with FoMO.

On the other hand, FoMO—defined as compulsive anxiety characterised by excessive fear of missing information—may further trigger compulsive and irrational behaviour on social media (Jabeen et al., 2023) [15]. Consequently, users with elevated FoMO may experience psychological distress when they perceive they are missing valuable information, leading them to engage in compulsive and indiscriminate hoarding of knowledge-based short videos. However, information hoarding involves only superficial saving or sharing of content, rather than actual knowledge application, which paradoxically reduces their adoption intention. That is, FoMO is negatively correlated with the willingness to adopt knowledge-based short video.

Therefore, FoMO plays a partial mediating role between incidental exposure and the willingness to adopt knowledge-based short video. For instance, when users experience lower levels of FoMO, their information processing becomes more rational, significantly enhancing the conversion efficiency of incidentally encountered information and thereby facilitating the adoption intention.

H3a. Incidental exposure is negatively correlated with FoMO.

H3b. FoMO is negatively correlated with the adoption intention of knowledge-based short video.

H3c. FoMO partially mediates the relationship between serendipitous exposure and the adoption intention of knowledge-based short video.

2.2.4. The moderating role of user curiosity

User curiosity refers to an individual's inclination to explore new information, manifested in a preference for novel knowledge and exploratory browsing unknown content, exhibiting the characteristics of an 'information wanderer'. However, as social media platforms predominantly rely on historical behavioral records to generate personalized recommendations, which reduces information novelty and undermines the role of passive incidental information to some extent.

In this context, user curiosity exerts a differential moderating effect. On the one hand, users with high curiosity have higher expectations regarding information novelty. When passively encountered content overlaps with their existing knowledge base, their perceived usefulness of the content decreases. Consequently, user curiosity negatively moderates the relationship between passive incidental exposure and perceived usefulness.

On the other hand, highly curious users are exceptionally sensitive to potential new knowledge. Passive incidental exposure provides them with opportunities to encounter heterogeneous information, thereby amplifying their FoMO) triggered by concerns about missing novel content. In other words, user curiosity positively moderates the relationship between incidental exposure and FoMO. These findings suggests that, in the context of information serendipity, curiosity may both weaken perceived usefulness by prioritising novelty and exacerbate FoMO through open exploration.

H4a. User curiosity negatively moderates the relationship between passive incidental exposure and perceived usefulness.

H4b. User curiosity positively moderates the relationship between passive incidental exposure and FOMO.

Based on the above assumptions, this study has developed a theoretical model illustrating how incidental exposure influences the adoption intention of knowledge-based short video information, as shown in Figure 1.

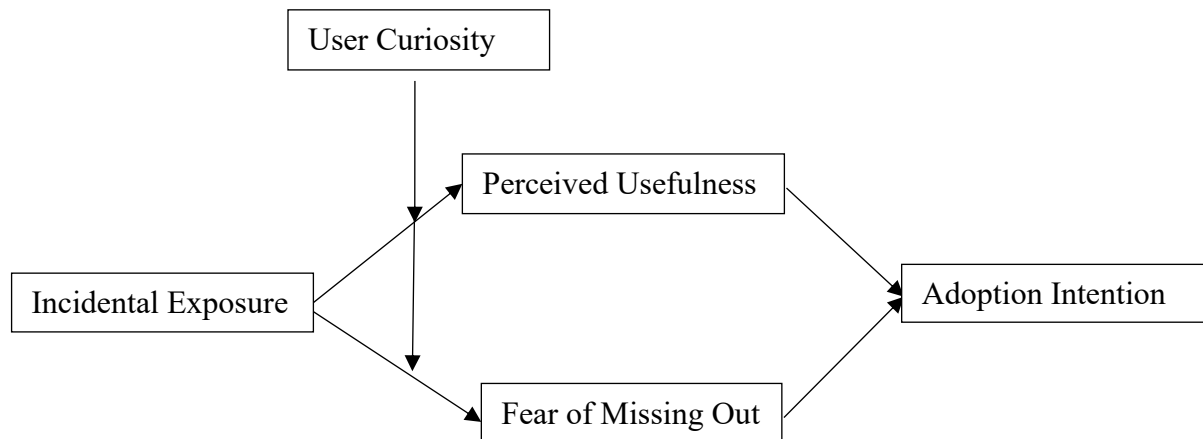


Figure 1. Theoretical model diagram

3. Research Methodology

3.1. Data Collection and Sample

This study employed a questionnaire survey to collect data for testing the hypotheses proposed in the preceding sections. The measurement items were primarily adapted from validated scales widely used in prior research, with modifications made to align with the knowledge-based short video context. All items originally in English were subjected to a standard translation-back-translation procedure to ensure cross-linguistic equivalence. A pilot study with 30 participants was subsequently conducted to identify and revise ambiguous or confusing items, resulting in the final questionnaire.

The study targeted university students, who are the primary users of knowledge-based short videos. Questionnaires were distributed and collected via the Wenjuanxing online survey platform. A total of 180 questionnaires were distributed during the formal survey. After rigorous data cleaning, 28 responses were excluded due to abnormal completion times (less than 60 seconds indicating careless responding or more than 1,000 seconds indicating interrupted responses), leaving 152 valid responses for further analysis. The effective response rate was 84.44%.

The demographic characteristics of the survey sample are as follows. The majority of respondents were female (59.87%); the age of respondents was concentrated in the 18–25 age group (50%). In terms of educational background, 63.16% were undergraduates and 19.08% were college students. In terms of income, the majority of respondents in the sample reported monthly living expenses of between 1,001 and 2,000 yuan (36.84%), 3,000 and 4,000 yuan (28.29%), and 2,000 and 3,000 yuan (22.73%). The majority of respondents were based in Shandong Province (17.76%).

3.2. Measurement of Variables

The scales used in this study are adapted from well-established scales employed in relevant research, with appropriate modifications made to suit the specific context of this study. All scales utilise a 5-point Likert scale, where 1 represents ‘strongly disagree’ and 5 represents ‘strongly agree’.

(1) Incidental exposure (Cronbach’s $\alpha = 0.913$). Following the studies by Scharkow et al. (2020) [11] and Swart (2023) [12], it was measured by four items.

(2) Perceived usefulness (Cronbach’s $\alpha = 0.938$). Following the research by Mensah et al. (2022) [14], perceived usefulness was measured by seven items.

(3) Fear of missing out (Cronbach’s $\alpha = 0.876$). Following the research by Jabeen et al. (2023) [15] and others, FoMO was measured by three items.

(4) Adoption intention (Cronbach’s $\alpha = 0.867$). Following the studies by Alalwan et al. (2017) [9] and Bai et al. (2022) [10], three items were used to measure adoption intention.

(5) User curiosity (Cronbach’s $\alpha = 0.932$). Following the study by Kashdan et al. (2018) [16], it was measured by five items.

(6) Control variables. User age, gender, educational attainment and time spent on social media were selected as control variables.

3.3. Reliability and Validity Tests

Reliability analysis revealed that all Cronbach's alpha coefficients were above 0.7, indicating satisfactory internal consistency of the measurement indicators. The factor loadings for each indicator ranged from 0.815 to 0.916, and the Average Variance Extracted (AVE) ranged from 0.732 to 0.801, exceeding the minimum standards. The results indicate that the variables possess good convergent validity.

3.4. Correlation Analysis

Table 1 presents the descriptive statistics and bivariate correlations for each variable. As shown in Table 1, incidental exposure is significantly positively correlated with perceived usefulness ($r = 0.874$, $P < 0.001$) and adoption intention ($r = 0.855$, $P < 0.001$), and significantly negatively correlated with fear of missing out ($r = -0.687$, $P < 0.001$). Furthermore, perceived usefulness was significantly positively correlated with adoption intention ($r = 0.874$, $P < 0.001$), whilst fear of missing out was significantly negatively correlated with adoption intention ($r = -0.662$, $P < 0.001$). These correlations provide preliminary support for the hypotheses of this study.

Table 1. Table of Correlation Coefficients

Variable	1	2	3	4	5	6	7	8	9
1. Watch duration	1								
2. Gender	0.091	1							
3. Age	0.207*	-0.118	1						
4. Education level	-0.033	-0.051	0.091	1					
5. Incidental exposure	-0.050	0.085	-0.100	0.070	1				
6. Perceived usefulness	-0.041	0.051	-0.085	0.107	0.874***	1			
7. Fear of missing out	-0.006	-0.058	-0.006	0.003	-0.687***	-0.721***	1		
8. User curiosity	-0.028	0.081	-0.025	0.110	0.862***	0.831***	-0.607***	1	
9. Adoption intention	0.126	0.036	-0.160*	0.138	0.855***	0.866***	-0.662***	0.815***	1

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

3.5. Data Analysis and Results

This paper employs multiple linear regression to test the theoretical hypotheses proposed in the study. We specified four nested models with adoption intention as the dependent variable. (1) Model 1 includes only control variables to account for their influence on the dependent variable. (2) Model 2 incorporates the independent variable (incidental exposure) into Model 1. (3) Models 3 and 4 further introduced the mediating variables (perceived usefulness and FoMO, respectively) to Model 2 to examine the relationship between the mediating variables and the dependent variable. (See Table 2).

As shown in M2, the regression coefficient for incidental exposure is significantly positive ($\beta = 0.823$, $p < 0.001$), indicating that incidental exposure is positively correlated with information adoption intention, providing support for H1. Similarly, M3 shows that the regression coefficient for perceived usefulness is significantly positive ($\beta = 0.494$, $p < 0.001$), indicating that perceived usefulness is positively correlated with information adoption intention. Therefore, H2b is supported. As shown in M4, the regression coefficient for FoMO is significantly negative ($\beta = -0.153$, $p < 0.01$), indicating that FoMO is negatively correlated with willingness to adopt information, thus confirming H3b.

Table 2. Regression results for main effects

Variable	Adoption intention			
	M1	M2	M3	M4
Constant	3.650***	0.766**	0.556*	1.594***
Watch duration	-0.109	-0.073	-0.077	-0.077
Gender	0.084	-0.084	-0.056	-0.085
Age	-0.144	-0.072	-0.068	-0.084**
Education level	0.243	0.134**	0.097	0.149*
Incidental exposure		0.823***	0.405**	0.709***
Perceived usefulness			0.494***	
Fear of missing out (FoMO)				-0.153**
R ²	0.058	0.749	0.806	0.764
F value	2.256	87.320***	100.240***	78.139***

Note: ***P<0.001, **P<0.01, *P<0.05

Secondly, the study took perceived usefulness and FoMO as dependent variables respectively to examine the relationship between incidental exposure and the mediating variables. Then, the moderating variable (user curiosity) and its interaction term with passivee and the interaction term with incidental exposure were included to test the moderating effect of curiosity, as shown in Table 3.

As can be seen from M2 in Table 3, the regression coefficient for incidental exposure on perceived usefulness was significantly positive ($\beta = 0.846$, $p < 0.001$), indicating a positive correlation between incidental exposure and perceived usefulness. Thus, H2a is supported. Similarly, as shown in M4, the regression coefficient for incidental exposure on FoMO is significantly negative ($\beta = -0.745$, $p < 0.001$), indicating that incidental exposure is negatively correlated with FoMO, supporting H3a.

To test the mediating roles of perceived usefulness and FoMO, the study compared the regression coefficients of M2 in Table 2 with those of incidental exposure in M3 and M4, respectively. It was found that the regression coefficients for incidental exposure in both M3 and M4 were reduced ($\beta_1 = 0.405$, $p < 0.001$; $\beta_2 = 0.709$, $p < 0.001$). These results showed that both perceived usefulness and FoMO partially mediate the relationship between incidental exposure and adopt intention, confirming H2c and H3c.

Furthermore, Model 3 in Table 3 indicates that the regression coefficient of the interaction term between curiosity and incidental exposure is significantly negative ($\beta = -0.174$, $p < 0.05$), suggesting that curiosity negatively moderates the relationship between information encounter and perceived usefulness. Therefore, H4a is confirmed. However, the regression coefficient of the interaction term between curiosity and incidental exposure in Model 6 is significantly positive ($\beta = 0.206$, $p < 0.001$), indicating that curiosity positively moderates the relationship between incidental exposure and FoMO, confirming H4b.

Table 3. Results of mediation and moderation tests

Variable	Perceived usefulness			Fear of missing out		
	M1	M2	M3	M4	M5	M6
Constant	3.389***	0.424	1.854***	2.798***	5.410***	4.713***
Watch duration	-0.028	0.009	0.010	0.003	-0.030	-0.033
Gender	0.118	-0.055	-0.075	-0.158	-0.006	0.006
Age	-0.081	-0.007	-0.033	-0.014	-0.080	-0.066
Education level	0.187	0.075	0.053	0.002	0.101	0.104
Incidental exposure		0.846***	0.515***		-0.745***	-0.609***
User curiosity			0.376***			-0.083
User curiosity*Incidental exposure			-0.174***			0.206*
R ²	0.023	0.766	0.807	0.004	0.482	0.504
F value	0.877	95.478***	85.989***	0.130	27.175***	20.879***

Note: ***P < 0.001, **P < 0.01, *P < 0.05; β in the table refers to the unstandardised regression coefficient.

4. Conclusion and Discussion

4.1. Results

Focusing on knowledge-based short videos, this research based on CAPS theory [13] to unpack the mechanisms through which passive incidental exposure influences the adopt intention from both cognitive and affective perspectives. The findings are as follows:

(1) The willingness to adopt information from knowledge-based short videos is influenced by incidental exposure. The data indicates that incidental exposure is significantly positively correlated with the willingness to adopt information ($\beta = 0.823$, $p < 0.001$); that is, the higher frequency of passive encounters with knowledge-based short videos on social media is associated with stronger adoption intention. This finding suggests that even in the absence of explicit active search motivation, incidental exposure to information can effectively promote users' knowledge adoption behaviour.

(2) Perceived usefulness and fear of missing out (FoMO) [15] play distinct mediating roles in the relationship between incidental exposure and the willingness to adopt knowledge-based short video content. The study found that perceived usefulness exerts a positive mediating effect ($\beta = 0.494$), while FoMO negatively mediates this relationship ($\beta = -0.153$). Together, these two mechanisms constitute a "cognitive facilitation-affective relief" competitive mediating pathway.

(3) User curiosity [16] exerts a significant and differentiated moderating effect on the relationships among incidental exposure and on the two mediating variables. The study found that user curiosity negatively moderates the relationship between incidental exposure and perceived usefulness ($\beta = -0.174$), as high-curiosity users are more sensitive to content redundancy. Conversely, it positively moderates the relationship between incidental exposure and fear of missing out ($\beta = 0.206$), as high-curiosity users are more attuned to potential knowledge gains. These findings reveal the double-edged sword effect of curiosity in serendipitous information contexts.

4.2. Theoretical Significance

This study makes several theoretical contributions to the research literature.

First, this study documents the positive effects of passive incidental exposure on information adoption intention. While previous research has identified how technical features of social media platforms (e.g., personalised recommendations algorithms) influence information adoption intention, it has largely overlooked the contingent nature of algorithmic recommendations. The findings demonstrate that accidental information exposure, despite lacking explicit user motivation, can effectively facilitate information reach and subsequent adoption. Consequently, this study highlights the underappreciated importance of exposure and the on social media passive incidental exposure, thereby extending the literature on social media exposure modes [11,12].

Second, this research unpacks the mechanisms through which passive incidental exposure influences information adoption intention from both cognitive and emotional perspectives, thereby demonstrating the critical role of emotional factors in users' information adoption decisions. Although emotional factors are increasingly recognized as key determinants of users' information-related behaviour, most existing studies have focused exclusively on rational cognitive processes. By identifying and comparing the cognitive and emotional pathways of information adoption intention for knowledge-based short video, this study addresses a critical gap in the previous research, which provides a more comprehensive understanding of information adoption behavior.

Third, by examining the moderating effect of user curiosity [16], this study extends the application scope of user curiosity to social media context. Previous research on curiosity has primarily focused on offline contexts such as education and work. The findings indicate that curiosity also plays a significant and divergent role in shaping users' responses to knowledge-based short videos within social media contexts. Consequently, this study expands the research boundaries of curiosity theory and provides new insights into how individual differences influence information processing in digital environments.

4.3. Practical Implications

This study also has several practical implications for knowledge-based short video platforms.

First, platforms should optimize their recommendation algorithms to leverage the value of passive incidental exposure. While personalized recommendations based on user history remain important, this study suggests that over-reliance on this approach may limit knowledge dissemination. Consequently, platforms should integrate exploratory recommendation mechanisms characterised by greater diversity and randomness into content feeds. This will increase users' chances of encountering cross-disciplinary and heterogeneous knowledge content, thereby expanding users' cognitive horizons and enhancing both the breadth of knowledge dissemination and the sense of unexpected delight.

Second, platforms should strike a balance between cognitive and emotional design elements to alleviate the negative effects of FoMO [15]. Research indicates that perceived usefulness (cognitive pathway) positively promotes information adoption, while FoMO (emotional pathway) acts as an inhibitor. Consequently, platforms should reinforce enhance the cognitive clarity of knowledge content by using descriptive titles, structured summaries and explicit practical scenarios. Concurrently, they should avoid overusing anxiety-provoking marketing tactics such as countdown timers, limited-time access notifications and social proof indicators that emphasize scarcity. Instead, platform should foster a low-pressure, high-autonomous learning environment that encourages deliberate knowledge acquisition rather than compulsive consumption .

Third, platforms should adopt curiosity-based content segmentation. Given the double-edged sword effect of user curiosity[16], different approaches are needed for different user groups. For highly curious users, platforms should prioritize frontier, interdisciplinary or counter-intuitive knowledge content to satisfy their novelty-seeking tendencies. Simultaneously, they should provide structured knowledge navigation tools such as knowledge maps or related content links to facilitate deep learning and prevent shallow hoarding behaviour. For users with low curiosity, platforms should focus on highly practical, everyday knowledge content that clearly demonstrates immediate value, thereby gradually stimulating their latent learning interest and adoption intention.

4.4. Limitations and Future Directions

This study has some limitations.

First, the cross-sectional questionnaires limit causal inferences and cannot capture dynamic changes in adoption intention over time. Future research could adopt a longitudinal design to track users' behaviors across multiple time points.

Second, our sample is limited to university students, which may restrict the generalizability of our findings. As digital natives, students have .unique social media usage habits that may significantly differ from other social groups (e.g., working professionals, middle-aged and elderly users, and people with lower educational background). Future research should include more diverse samples across age, occupation, educational background and geographical region to test the robustness of our results.

Third, This study focuses on a limited set of mediators and moderators. However, the process of incidental knowledge exposure is complex and may be influenced by additional cognitive factors (e.g., perceived information quality and source credibility) [1,2,3,4], emotional factors (e.g., interest, pleasure and trust), as well as boundary conditions (e.g., need for cognition, platform design features)[5,6,7,8]. Future research should incorporate these variables to develop a more comprehensive understanding of incidental information adoption.

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