The factors influencing persuasion knowledge and purchase intentions on live-streaming commerce platforms among Generation Z consumers in Vietnam: The moderating role of anticipated inaction regret

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Abstract:

In recent years, the rapid growth of live-streaming commerce in Vietnam has transformed consumer behaviour, with streamers playing a pivotal role in purchase decisions. Live streamers have had a profound impact on shaping consumers' purchasing decisions. This study explores the self-presentation behaviours of live streamers within the context of e-commerce live-streaming and examines their impact on consumers' purchase intentions. A survey of 264 Generation Z consumers in Vietnam reveals that helpful and empathetic behaviours exhibited by live streamers positively influence consumers' purchase intentions. These findings offer both theoretical contributions to digital persuasion literature and practical strategies for Vietnamese e-commerce platforms. Moreover, derogatory behaviour and exaggerated behaviour displayed during broadcasts can significantly enhance persuasion knowledge regarding consumer purchases. Additionally, anticipated inaction regret (AIR) serves as a moderating factor in the relationship between persuasion knowledge and consumers' purchase intentions. Furthermore, AIR significantly moderates this process, suggesting that emotional anticipation of regret can override consumers' scepticism driven by persuasion knowledge, thereby increasing their purchase intention. However, the use of convenience sampling and the predominance of urban respondents may limit the generalisability of the findings.

Keywords: **Generation Z, interactivity, live-streaming commerce, purchase intention, self-presentation, Vietnam.**

Classification numbers: **1.4, 2.2, 4.1**

1. Introduction

In the era of rapidly advancing digital technology, live broadcasting on e-commerce platforms has become a preferred method of online consumption for many consumers. As the information age and live technology continue to evolve, the live broadcasting industry is swiftly expanding, emerging as an innovative and popular means of disseminating information and providing entertainment to a wide audience of consumers [1]. By seamlessly integrating product display, interaction, and transactions through live-streaming, consumers are offered a convenient and engaging shopping experience that meets their informational needs regarding products. This approach, particularly with real-life images, effectively stimulates consumer behaviour [2]. Live streamers serve as key product promoters during broadcasts, leveraging their language and performance to captivate consumer attention and ignite purchasing desires [3-5]. Live commerce, as an innovative model of social e-commerce, has swiftly evolved due to its unique advantages in interactivity, intuitiveness, and entertainment [6, 7].

Live e-commerce creates an interactive, real-time environment focused on the consumer [8]. Unlike traditional e-commerce, which relies heavily on images and text, live e-commerce offers a realistic and visual presentation of product information, allowing consumers to share their opinions and comments in real time [9]. As a result, many consumers prefer exploring products and services through live e-commerce over traditional e-commerce [10, 11]. One of the standout features of live broadcast shopping is the dynamic interaction between streamers and consumers. This

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form of commerce not only emphasises product presentation but also fosters social engagement between sellers and consumers [12, 13]. However, the low barriers to entry within the live-streaming industry often result in a number of streamers who lack comprehensive product knowledge and adhere to questionable ethical standards [14]. These streamers frequently rely on strong promotional tactics like flattery and exaggeration. Research shows that in live-stream sales, persuasion language focusing on personality traits works best for boosting sales. However, logic-based approaches often have the opposite effect [15]. Furthermore, several studies have explicitly explored the impacts of advanced interactive features aimed at enhancing user engagement. These features include live chat, Q&A sessions, screen sharing, and guest appearances [16, 17]. Despite these studies, the effect of live streamers' self-expressive behaviours on consumers has not been sufficiently examined. Therefore, when examining the field of business based on e-commerce platforms, the impact of the behaviours of live streamers needs to be investigated from the perspective of individual behaviour that may influence persuasion knowledge leading to consumer purchasing behaviour. Online shopping facilitates real-time inquiries from potential buyers and provides seamless access to reviews from other customers [16-19]. This interaction may result in a sense of urgency that encourages consumers to make instantaneous purchases during the live-streaming process. However, it is crucial to consider the impact of negative emotions on consumer purchasing decisions, as they can seamlessly switch to alternative live-streaming channels or shopping platforms without incurring additional costs.

Previous research has examined different elements of live-streaming commerce, but few studies have combined self-presentation behaviours and persuasion knowledge into one complete framework. To expand this research, important findings from China, the United States, and Europe were included [3-5]. These international studies show how persuasion techniques work across cultures, and how they differently affect Generation Z's trust, scepticism, and engagement in online shopping.

Generation Z is a group of consumers shaped by the digital age, preferring to shop through online channels and exhibiting unique consumption behaviour patterns. Recently, there have been numerous studies on the impact of live-streaming on commerce platforms on the purchase intentions of Generation Z [20-23]. In Vietnam, studies have analysed the impact of online shopping activities on Generation Z [24]. Additionally, enhancing entertainment value, information quality, interactivity, peer reviews, and recommendations, as well as the characteristics of live streamers during streaming sessions, significantly influences the purchasing intentions of Generation Z in Vietnam [25]. The study revealed that heightened entertainment value, superior information quality, enhanced interactivity, positive peer evaluations, and the presence of more attractive and expert streamers significantly boost purchase intentions. Recent studies highlight the growing influence of live-streaming commerce on consumer behaviour [1, 2]. This study integrates four theoretical frameworks to analyse live streamers' influence on Generation Z consumers: (1) the Persuasion Knowledge Model [26], which examines how audiences recognise persuasion attempts; (2) E. Goffman's (1959) [27] self-presentation theory, addressing performers' identity management; (3) the Uses and Gratifications Theory [28], exploring viewer motivations; and (4) the Technology Acceptance Model, assessing platform adoption factors [29]. However, the interaction between streamers' self-presentation strategies and consumers' persuasion awareness remains understudied, particularly among Generation Z in Vietnam

This study addresses this gap by examining the moderating role of AIR. Among these factors, streamers exerted the most substantial influence, while information quality had the least impact. Perceived risk does not significantly impede purchasing intentions, indicating Generation Z's confidence in digital transactions and their readiness to accept risks in pursuit of engagement and entertainment within live-streaming commerce.

2. Literature review and hypothesis

2.1. Self-presentation

This study is theoretically anchored in self-presentation theory [27] and the Persuasion Knowledge Model [26], which together explain how streamers' behavioural performances are interpreted through consumers' persuasion knowledge and ultimately shape purchase intentions. The concept of self-presentation was initially articulated by E. Goffman (1959) [27], where he characterised social interactions

as strategic performances in which individuals assume the roles of performers on a stage. He suggested that individuals leverage communication, nonverbal cues, and interpersonal dynamics to convey their identities, with the objective of fostering a positive perception and persuading others to align with their proposed initiatives, thereby enhancing collaborative engagements and achieving organisational objectives.

Subsequent research has illustrated that any attempts to manage or influence how others perceive one's behaviour, encouraging them to interpret their behaviour as congruent with one's own objectives, are incorporated within the framework of self-presentation. Hence, drawing upon extensive observations of live-streaming e-commerce and aligning with the classification of self-presentation strategies delineated by E.E. Jones, et al. (1982) [30], along with prior research regarding the behaviours that sales personnel might employ in the realm of persuasion marketing, this study classifies live streamers' self-presentation behaviours into five distinct categories: helpful behaviour, empathetic behaviour, flattering behaviour, derogatory behaviour, and exaggerated behaviour [31].

Hypothesis H1a: Helpful behaviours exhibited by live streamers are positively associated with consumers' purchase intentions.

Helpful behaviours encompass the provision of timely support and prudent guidance for consumers. For instance, live streamers may showcase product appearances, demonstrate functionalities, model clothing, and suggest suitable products according to consumers' needs during interactive live sessions. These behaviours facilitate practical shopping assistance and foster positive emotions throughout the purchasing experience [32, 33]. The helpful behaviours of live streamers can enhance consumers' comprehension of products, mitigate their apprehensions associated with online shopping, and bolster their propensity to engage in purchasing activities during the live stream. Therefore, the author propose the following hypothesis:

Hypothesis H1b: Empathetic behaviours exhibited by live streamers are positively associated with consumers' purchase intentions.

Empathetic behaviour can be defined as an individual's propensity to synchronise their cognitive and emotional frameworks with those of others, facilitating the establishment of emotional connections. In live-streaming, this behaviour is evidenced by the capacity of the live streamer to comprehend and resonate with the perspectives of consumers. The attributes of empathetic behaviour are posited to more effectively address the emotional requirements of viewers throughout the shopping process, thereby enhancing their overall shopping experience [34, 35].

Hypothesis H1c: Flattering behaviours exhibited by live streamers are negatively associated with consumers' purchase intentions.

The behaviour of flattery is associated with behaviours that augment the status or superficial qualities of customers for the purpose of eliciting their approval. Individuals frequently engage in flattery to secure favor or to align with the expectations and interests of live streamers [36, 37]. Marketers commonly utilise this strategy to cultivate a favourable impression; however, it may concurrently compromise consumers' perceptions of authenticity, resulting in adverse attitudes towards marketers and their offerings [38, 39]. Generation Z's strong digital literacy and regular exposure to influencer marketing make them more capable of recognising insincere flattery. As a result, their trust may decrease, leading to lower purchase intentions [38].

Hypothesis H1d: Derogatory behaviours exhibited by live streamers are negatively associated with consumers' purchase intentions.

The act of denigration entails the purposeful comparison and disparagement of analogous products and fellow live streamers. Observations of live-streaming broadcasts reveal that certain streamers intentionally seek to undermine their competitors or rival products in order to manipulate consumer emotions and bolster their own reputation [5]. While denigration may facilitate the objective of self-promotion, this adverse behaviour has the potential to reduce consumer satisfaction and subsequently impact their overall engagement with the brand. A decline in consumer enjoyment and affinity may result in an increased reluctance to procure products during the live-streaming experience. As a generation that highly values transparency and authenticity, Generation Z is likely to perceive derogatory behaviour as manipulative or unprofessional. This perception may consequently weaken their emotional engagement with both the streamer and the associated brand [14].

Hypothesis H1e: Exaggerated behaviours exhibited by live streamers are negatively associated with consumers' purchase intentions.

Exaggerated behaviour pertains to the embellishment of product features and the overstating of an individual's capabilities. Streamers frequently present products in an overly complimentary manner, magnifying their benefits; some even assign themselves unrealistic titles such as "expert" to attract consumer interest. Previous studies have suggested that consumers often possess negative perceptions toward overly laudatory product assertions [40]. As the degree of implausibility in the commendatory conduct escalates, consumers' perceptions of the product decline, leading to a reduced propensity to accept the product [41]. Given the ease of online fact-checking in today's digital environment, Generation Z consumers are more likely to react negatively to exaggerated claims. Such statements are often viewed as deceptive or insincere, ultimately diminishing the effectiveness of persuasion communication [40, 41].

2.2. Persuasion knowledge

Previous research has not comprehensively analysed the impact of negative affective states on consumers' evaluative processes regarding choices. Nevertheless, contemporary consumers encounter informational constraints from diverse sources, culminating in phenomena of information overload [42]. Such an overload amplifies consumers' sensitivity and vigilance towards marketing manipulations, thereby complicating the persuasion process. Consequently, it is imperative to focus on the mechanisms that activate and influence persuasion knowledge, a detrimental cognitive state, within the framework of live-stream e-commerce. The construct of persuasion knowledge was initially introduced by M. Friestad, et al. (1994) [26] and pertains to consumers' cognitions and beliefs concerning marketers' persuasion objectives and endeavours, as well as their foundational motives and strategies, which encompass an individual's capacity to identify and respond to persuasion intentions. Subsequent studies have demonstrated that persuasion knowledge encompasses consumers' understanding and beliefs regarding the objectives, intentions, underlying motives, and sales strategies employed in persuasion, incorporating both rational and emotional evaluations [43-45].

Hypothesis H2a: Helpful behaviours exhibited by live streamers are negatively associated with the activation of consumers' persuasion knowledge.

To broaden the theoretical framework, the research integrates the Uses and Gratifications Theory [28] and the Technology Acceptance Model (TAM) [29], which complement the Persuasion Knowledge Model by explaining how consumers derive value from live-streaming and adopt new technologies. The streamer serves as a crucial information provider for consumers looking for in-depth details about products. Their role encompasses conveying information and promoting products through language and emotional appeal during the process of interpretation and interaction. The professionalism and credibility of the streamer are contingent upon their ability to aid customers in understanding the product and addressing inquiries with their expertise [31]. Consequently, it is proposed that the helpful behaviour of the streamer may mitigate the effectiveness of activating persuasion knowledge.

Hypothesis H2b: Empathetic behaviours exhibited by live streamers are negatively associated with the activation of consumers' persuasion knowledge.

Empathetic behaviour seeks to establish emotional resonance between consumers and streamers, thereby fostering a sense of intimacy and reorienting the emphasis from sales objectives to mutual interests and emotions. This reallocation of attention is expected to disrupt consumers' assumptions regarding the underlying motives and sales strategies of the streamer, consequently reducing the activation of persuasion knowledge. Moreover, empirical studies on fan effects have suggested that empathetic interactions between internet celebrities and their audiences can fortify fans' sense of attachment and augment their trust [46]. It is proposed that empathetic actions demonstrated by streamers attenuate consumers' resistance and scepticism by redirecting their focus and enhancing trust, consequently reducing the potential to activate persuasion cognition.

Hypothesis H2c: Flattering behaviours exhibited by live streamers are positively associated with the activation of consumers' persuasion knowledge.

Flattery is utilised by individuals to foster favourable interpersonal relationships and obtain corresponding rewards. In specific contexts, the act of flattery may enhance the enjoyment experienced by others. Nevertheless, research indicates that, in

comparison to praise rendered post-purchase, flattery administered by marketers pre-purchase is more likely to result in a diminished assessment of attitudes towards products and services [47]. Live-streaming e-commerce embodies a persuasion context wherein streamers possess pronounced self-serving motives. Inappropriate flattery amplifies consumers' scepticism regarding a marketer's intentions, engendering doubts about the authenticity of the products. This results in negative emotions towards marketers and a refusal to follow recommendations. Consequently, we propose that the flattery exhibited by live streamers may activate a higher level of persuasion knowledge.

Hypothesis H2d: Derogatory behaviours exhibited by live streamers are positively associated with the activation of consumers' persuasion knowledge.

The act of derogatory behaviour towards peers or analogous products accentuates the merits of one's own offering; however, this practice is intrinsically subjective and necessitates considerable scrutiny. Consumers generally anticipate that live streamers, as critical sources of information, will furnish objective data and recommendations. Nevertheless, such derogatory behaviour undermines the consumers' perception of objectivity. Furthermore, this conduct by live streamers may be interpreted as a calculated endeavour to manipulate public opinion, thereby intensifying consumers' vigilance. Consequently, it is posited that the derogatory behaviour of live streamers may elicit an elevated level of persuasion knowledge.

Hypothesis H2e: Exaggerated behaviours exhibited by live streamers are positively associated with the activation of consumers' persuasion knowledge.

Excessive praise of products or the elevation of their status often carries a clear intention of advertising, making persuasion signals more discernible and prompting consumers to utilise persuasion knowledge to counter marketing efforts [47]. Therefore, the exaggerated behaviour of live streamers may activate higher levels of persuasion knowledge. Based on this reasoning, the present study proposes the following hypothesis:

Consumers regard the sources and information presented in advertisements as reliable; however, they also become aware of underlying manipulative intentions, such as attempts to elicit sympathy for donations or incite feelings of guilt. They may feel manipulated or even angered by inappropriate calls to action within advertisements, leading to negative attitudes towards both the advertisements and the brand [47].

Hypothesis H3: Consumers' persuasion knowledge is negatively associated with their purchase intentions.

In live-streaming e-commerce, streamers' diverse self-presentation is expected to activate consumers' persuasion knowledge, leading to increased defensiveness and scepticism about the streamers' motives and strategies, ultimately reducing alignment with the live stream [48]. Consequently, consumers are less likely to embrace the streaming channel and the showcased products, thus decreasing their susceptibility to persuasion attempts to make purchases. Therefore, it can be concluded that in a shopping environment enabled by live-streaming, the activation of an individual's persuasion knowledge causes consumers to adopt a more defensive and sceptical stance towards the motives and strategies of the live streamers. This dynamic lowers the likelihood of consumers being swayed to purchase the products and services endorsed by the streamers.

In this regard, the following hypothesis is proposed:

2.3. Anticipated inaction regret

In situations where decision-making is uncertain, the anticipation of regret can play a significant role in shaping an individual's ultimate choice [49]. The notion of anticipated regret can be categorised into two forms: anticipated regret due to inaction and anticipated regret due to action. Anticipated regret from inaction refers to the regret that consumers foresee experiencing in the future for not taking action now. In contrast, anticipated regret about action is the regret that consumers expect to feel in the future when they act now [50]. Research indicates that in the short term, people experience stronger regret for actions taken than for those not taken. Over the long term, the regret for missed opportunities tends to be more significant [51].

Hypothesis H4: Anticipated inaction regret positively moderates the relationship between persuasion knowledge and purchase intentions.

The emotional experience of regret associated with inaction is a potent affective response that can influence individual decision-making processes [52]. This research posits that such regret may mitigate adverse effects of persuasion information

on consumers' intentions to purchase during live-streaming events. In particular, amidst diverse promotional stimuli, consumers are likely to experience a sense of regret for failing to act while engaged with a live stream [44]. Even when individuals become aware of the persuasion intentions of the content creator, they may prioritise the avoidance of regret over their inherent scepticism regarding the persuasion content. Therefore, consumers might set aside their doubts and opposition to the streamer's persuasion methods, ultimately forming a strong intention to purchase.

Consequently, the following hypothesis is proposed:

2.4. Proposed model

To comprehensively examine the mechanisms by which the self-presentation behaviours of live streamers influence consumer behaviour within the context of e-commerce platforms, particularly regarding the monitoring of live broadcasts for purchasing decisions, it is imperative to base this inquiry on the empirical findings of S. Song, et al. (2024) [31]. The research model in Fig. 1 shows the relationship between self-presentation behaviour, persuasion knowledge (PK), anticipated inaction regret (AIR), and purchase intention (PI).

The self-presentation behaviour scale was based on the studies of R.B. Cialdini, et al. (1980) [53], E.E. Jones, et al. (1982) [30], H.M. Liraz, et al. (2013) [54], and H.G.M. Vossen, et al. (2016) [55], consisting of 5 behaviour scales (each behaviour includes 3 measurement items). The persuasion knowledge (PK) scale was based on the research of M.C. Campbell, et al. (2000) [47], consisting of 4 measurement items. The anticipated inaction regret (AIR) scale regarding inaction was based on V.M. Patrick, et al. (2009) [56], including 4 measurement items. The purchase intention scale was based on the research of V.A. Zeithaml, et al. (1996) [57], consisting of 3 measurement items.

3. Methods

The survey was conducted from 1 November, 2024, to 31 December, 2024. According to J. Hair, et al. (2009) [58], the minimum sample size required is five times more than the number of research indicators. Therefore, this study needs a minimum sample size of 260. This study employed convenience sampling, a non-probability sampling technique that enabled rapid data collection and achieved an adequate sample size within the planned timeframe; however, it introduces potential selection bias and restricts the generalisability of the findings. Data were collected via an online survey using Google Forms, employing a non-probability convenience sampling technique. The survey targeted Generation Z consumers in Vietnam, with 264 valid responses analysed. The collected data were analysed using statistical software such as SPSS 20 and AMOS 22. Each variable

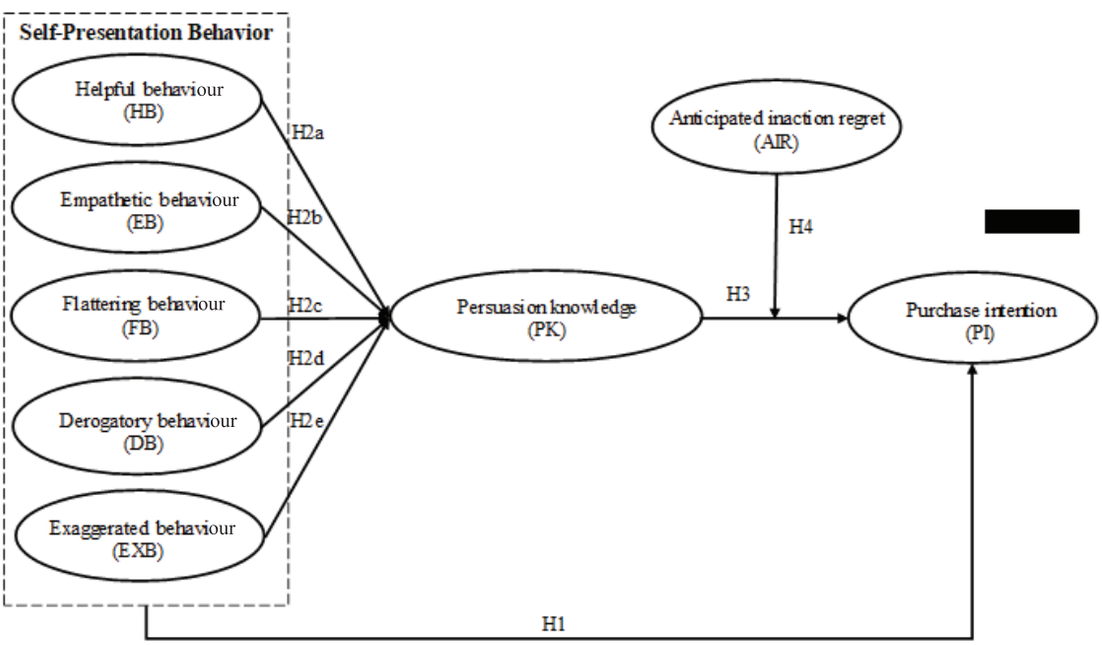

Fig. 1. The research model.

was measured using a five-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree), based on a literature review.

The data analysis process includes descriptive statistical analysis, assessing the reliability of the measurement scale with Cronbach's alpha, exploratory factor analysis (EFA) using SPSS software. Next, confirmatory factor analysis (CFA), testing for convergent and discriminant validity of the scales conducted using AMOS software. Structural equation modelling (SEM) analysis is used to identify and test the relationships between variables in a theoretical model. Furthermore, it assesses the role of persuasion knowledge of live streamers as a mediating factor between self-presentation behaviour and consumers' purchase intentions, as well as examining moderating factors within the model.

4. Results

4.1. Data description

The results obtained are as follows: The total number of results is 268 participants; after removing invalid participants, the number of valid participants collected is 264 participants, which were included in the official quantitative analysis study. The survey included both male and female respondents from Generation Z. Out of 264 participants, 65 were male (24.6%) and 199 were female (75.4%). Most of the participants had College/University education, accounting for 88.3%, and the majority were students and workers with an income of less than 5 million VND. Most of the survey results were from Ho Chi Minh city and Hanoi (Table 1).

4.2. Validity and reliability testing of instruments

4.2.1. Testing the research measurement scale

The results of the reliability testing of the measurement scales for the factors using Cronbach's alpha coefficients indicate that all Cronbach's alpha coefficients are greater than 0.7 (Table 2), and the correlation coefficients of the observed variables within the factors are all greater than 0.3. This shows that the research is appropriate and reliable, with no variables excluded from the model. As a result, all the measurement scales achieve high reliability, meeting the conditions to proceed to the next analysis steps.

4.2.2. Exploratory factor analysis

A total of 8 factors along with 26 observed variables were proposed in the research model. The reliability check using Cronbach's alpha for the measurement scales was conducted, and all observed variables

Table 1. Description of the research sample.

Variables (N=264)	Items	Frequency	Percentage (%)
Gender	Male	65	24.6
	Female	199	75.4
Education	High school	15	5.7
	College/University	233	88.3
	Postgraduate	16	6.1
Occupation	Student	232	87.9
	Civil servant	8	3.0
	Office worker	24	9.1
Income	Less than 5 million VND	163	61.7
	From 5 to less than 10 million VND	68	25.8
	From 10 to less than 15 million VND	18	6.8
	From 15 to less than 20 million VND	10	3.8
	More than 20 million VND	5	1.9
Area	Ho Chi Minh city	168	63.6
	Hanoi	80	30.3
	Da Nang	10	3.8
	Other	6	2.3

Source: The author's survey data 2024.

Table 2. Results of Cronbach's alpha testing for the measurement scales.

Constructs	Items	Corrected item-total correlation	Cronbach's alpha	Sources
Helpful behaviour (HB)	HB1	0.568	0.753	[54]
	HB2	0.571		
	HB3	0.606		
Empathetic behaviour (EB)	EB1	0.621	0.744	[55]
	EB2	0.578		
	EB3	0.514		
Flattering behaviour (FB)	FB1	0.741	0.839	[30]
	FB2	0.736		
	FB3	0.636		
Derogatory behaviour (DB)	DB1	0.718	0.849	[53]
	DB2	0.735		
	DB3	0.700		
Exaggerated behaviour (EXB)	EXB1	0.762	0.878	[53]
	EXB2	0.785		
	EXB3	0.747		
Persuasion knowledge (PK)	PK1	0.747	0.872	[47]
	PK2	0.712		
	PK3	0.717		
	PK4	0.728		
Purchase intention (PI)	PI1	0.668	0.796	[57]
	PI2	0.619		
	PI3	0.630		
Anticipated inaction regret (AIR)	AIR1	0.778	0.881	[56]
	AIR2	0.727		
	AIR3	0.728		
	AIR4	0.733		

Source: The author's survey data 2024.

were included to evaluate the correlation among these variables as well as the suitability of the survey variables.

The first iteration of EFA was conducted with independent variables: the KMO value was 0.826 (>0.5) and the Bartlett's Sig. value was 0.000 (<0.05), indicating that the data was entirely suitable for EFA analysis. Five factors were extracted, with the criterion of Eigenvalue >1, and the cumulative total variance extracted reached 74.066% (>50%), suggesting that the independent observed variables are significantly correlated with each other and account for 74.066% of the variance in the data of the observed variables participating in EFA.

The second iteration of EFA was conducted with mediating variables: the KMO value was 0.812 (>0.5) and the Bartlett's Sig. value was 0.000 (<0.05), demonstrating that the data was entirely suitable for EFA analysis. One factor was extracted, with the criterion of Eigenvalue >1, and the cumulative

total variance extracted reached 72.310% (>50%), indicating that the mediating observed variables are significantly correlated with each other and account for 72.310% of the variance in the data of the observed variables participating in EFA.

The third iteration of EFA was conducted with dependent variables: the KMO value was 0.706 (>0.5) and the Bartlett's Sig. value was 0.000 (<0.05), signifying that the data was entirely suitable for EFA analysis. One factor was extracted, with the criterion of Eigenvalue >1, and the cumulative total variance extracted reached 71.022% (>50%), suggesting that the dependent observed variables are significantly correlated with each other and account for 71.022% of the variance in the data of the observed variables participating in EFA. The detailed results of the factor loadings from all three EFA iterations are summarised in Table 3.

Table 3. Results of the factor rotation matrix.

Constructs	Items	Components						
		1	*2*	*3*	*4*	*5*	*6*	*7*
Exploratory factor analysis for independent variables								
Exaggerated behaviour (EXB)	EXB2	0.952						
	EXB1	0.874						
	EXB3	0.863						
Derogatory behaviour (DB)	DB3		0.912					
	DB1		0.859					
	DB2		0.848					
Flattering behaviour (FB)	FB3			0.872				
	FB2			0.848				
	FB1			0.847				
Helpful behaviour (HB)	HB3				0.836			
	HB2				0.836			
	HB1				0.754			
Empathetic behaviour (EB)	EB2					0.877		
	EB1					0.835		
	EB3					0.678		
Eigenvalue index		4.929	2.292	1.401	1.256	1.232		
Total variance explained (%)		74.066						
Exploratory factor analysis for mediator variables								
Persuasion knowledge (PK)	PK1						0.865	
	PK4						0.851	
	PK3						0.845	
	PK2						0.841	
Eigenvalue index		2.892						
Total variance explained (%)		72.310						
Exploratory factor analysis for dependent variables								
Purchase intention (PI)	PI1							0.861
	PI3							0.837
	PI2							0.829
Eigenvalue index		2.131						
Total variance explained (%)		71.022						

Source: The author's survey data 2024.

4.2.3. Confirmatory factor analysis

According to the test results, the CMIN/df index is 1.470≤3, which is considered acceptable; the CFI index is 0.967>0.95, which is regarded as very good; and the RMSEA index is 0.042≤0.08, which is also considered very good. Thus, it can be observed that the observed variables possess convergent validity concerning the representative variables, while all variables exhibit discriminant validity with no signs of autocorrelation. The standardised results of the confirmatory factor analysis are illustrated in Fig. 2.

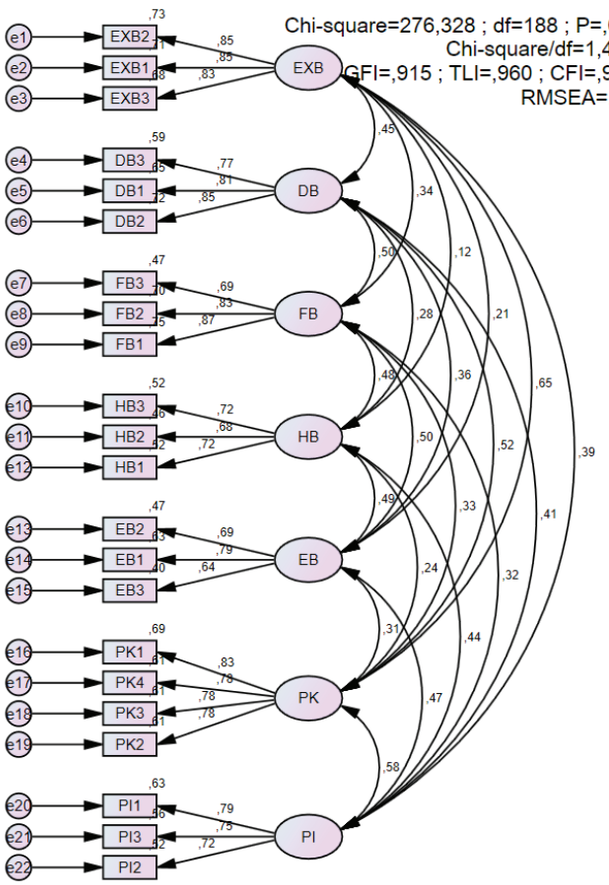

Fig. 2. Results of the confirmatory factor analysis. Source: The author's survey data 2024.

4.2.4. Analysis of the structural model using structural equation modelling

Based on the results of the CFA, the author developed a SEM and conducted the necessary verification steps. The results of the structural model estimation are shown in Fig. 3, and the corresponding path coefficients and hypothesis testing results are summarised in Table 4.

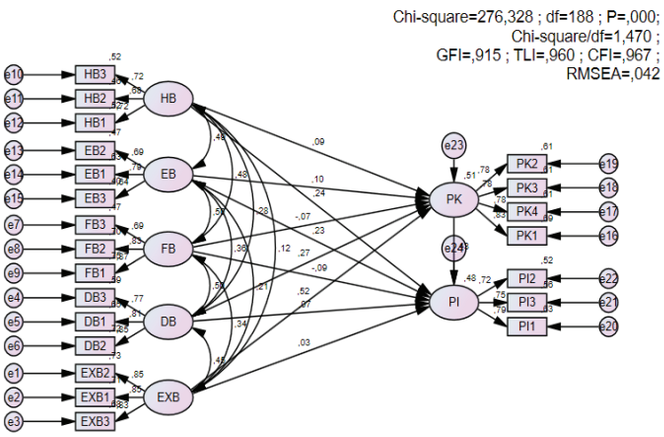

Fig. 3. Results of the structural equation modelling structural model verification. Source: The author's survey data 2024.

The hypotheses H2a, H2b, H2c, H1c, H1d, and H1e have been rejected (p-value>0.05). The remaining hypotheses all present a p-value<0.05, indicating that the impact of the factors is statistically significant, accepted at a confidence level of 95% (p-value<0.05). While some hypotheses (H1c, H1d, H1e, H2a, H2b, H2c) were not statistically supported, these findings are insightful in understanding the evolving mindset of Generation Z. Their resistance to negative self-presentation behaviours could reflect a broader trend of increased scepticism toward manipulative digital marketing tactics [44].

The results confirm that the square roots of AVEs (diagonal values) exceed the inter-construct correlations, satisfying the criteria of C. Fornell, et al. (1981) [59]. Additionally, all HTMT ratios were below the threshold of 0.90, further supporting discriminant validity [60]. These results are summarised in Table 5.

4.2.5. Analysis of the mediating role of persuasion knowledge

To examine the existence of the mediating variable PK, Bootstrap with a sample size N=1000 was utilised, with 95% serving as the confidence level for the bootstrap test. These findings on mediation effects are detailed in Table 6.

Purchase intentions (PI) mediated by Persuasion knowledge (PK) through Helpful behaviour (HB): The analysis reveals a direct effect of 0.244 (p=0.006), which is significant at the 5% level (p<0.05). The indirect effect is 0.038 (p=0.269), which is not significant. This suggests a full mediation effect where Helpful behaviour significantly impacts Purchase Intentions through Persuasion knowledge. While

Table 4. Results of the structural equation modelling.

Path coefficients	Estimate	Standard error	Critical ratio	P-value	Hypothesis	Evaluation
Persuasion knowledge <--- Helpful behaviour	0.11	0.096	1.148	0.251	H2a	Rejected
Persuasion knowledge <--- Empathetic behaviour	0.118	0.098	1.204	0.229	H2b	Rejected
Persuasion knowledge <--- Flattering behaviour	-0.075	0.089	-0.841	0.400	H2c	Rejected
Persuasion knowledge <--- Derogatory behaviour	0.262	0.074	3.533	***	H2d	Accepted
Persuasion knowledge <--- Exaggerated behaviour	0.45	0.061	7.417	***	H2e	Accepted
Purchase intentions <--- Persuasion knowledge	0.389	0.09	4.322	***	H3	Accepted
Purchase intentions <--- Helpful behaviour	0.273	0.099	2.753	0.006	H1a	Accepted
Purchase intentions <--- Empathetic behaviour	0.263	0.101	2.606	0.009	H1b	Accepted
Purchase intentions <--- Flattering behaviour	-0.095	0.09	-1.056	0.291	H1c	Rejected
Purchase intentions <--- Derogatory behaviour	0.06	0.076	0.784	0.433	H1d	Rejected
Purchase intentions <--- Exaggerated behaviour	0.026	0.07	0.374	0.708	H1e	Rejected

Source: The author's survey data 2024.

Table 5. Fornell-Larcker matrix.

Constructs	HB	EB	FB	DB	EXB	PK	PI	AI
HB	**0.82**							
EB	0.41	**0.78**						
FB	0.12	0.09	**0.84**					
DB	0.08	0.05	0.23	**0.86**				
EXB	0.07	0.04	0.25	0.52	**0.88**			
PK	0.11	0.12	0.08	0.26	0.45	**0.83**		
PI	0.27	0.26	0.10	0.06	0.03	0.39	**0.81**	
AIR	0.05	0.04	0.07	0.09	0.12	0.18	0.05	**0.85**

Helpful behaviour (HB); Empathetic behaviour (EB); Flattering behaviour (FB); Derogatory behaviour (DB); Exaggerated behaviour (EXB); Persuasion knowledge (PK); Purchase intention (PI); Anticipated inaction regret (AIR). Source: The author's survey data 2024.

Table 6. Results of the impacts of the mediating variable.

Path coefficients	Direct		Indirect		Type of mediation
	S.ES	*Sig*	*S.ES*	*Sig*	
PI <---PK<--- HB	0.244	0.006	0.038	0.269	Full mediation
PI <---PK<--- EB	0.233	0.009	0.041	0.228	Full mediation
PI <---PK<--- FB	-0.094	0.291	-0.029	0.387	No effect
PI <---PK<--- DB	0.067	0.443	0.113	0.004	Partial mediation
PI <---PK<--- EXB	0.033	0.708	0.222	0.001	Partial mediation

Helpful behaviour (HB); Empathetic behaviour (EB); Flattering behaviour (FB); Derogatory behaviour (DB); Exaggerated behaviour (EXB); Persuasion knowledge (PK); Purchase intention (PI); Anticipated inaction regret (AIR). Source: The author's survey data 2024.

Helpful behaviour had a direct positive effect on PI (β=0.244, p=0.006), its indirect effect via Persuasion knowledge was nonsignificant (β=0.038, p=0.269). Thus, Persuasion knowledge does not mediate this relationship, suggesting other unexplored mechanisms.

Purchase intentions mediated by Persuasion knowledge through Empathetic behaviour: The study finds a direct effect of 0.233 (p=0.009), significant at the 5% level (p<0.05), and an indirect effect of 0.041 (p=0.228), which is not significant. This pattern suggests full mediation, where Empathetic behaviour significantly impacts Purchase intentions through Persuasion knowledge. Similar to Helpful behaviour, the significant direct effect and non-significant indirect effect indicate that Empathetic behaviour influences Purchase intentions mainly through the mediator, Persuasion knowledge.

Purchase intentions mediated by Persuasion knowledge through Flattering behaviour: The direct effect is -0.094 (p=0.291), and the indirect effect is -0.029 (p=0.387); neither is significant. Consequently, Flattering behaviour does not have a significant impact on Purchase intentions either directly or indirectly through Persuasion knowledge. This indicates no mediation effect, suggesting that Flattering behaviour is ineffective in altering Purchase intentions.

Purchase intentions mediated by Persuasion knowledge through Derogatory behaviour: The analysis shows a direct effect of 0.067 (p=0.443) and an indirect effect of 0.113 (p=0.004), which is significant at the 5% level (p<0.05). This indicates partial mediation, where Derogatory behaviour significantly impacts Purchase intentions indirectly through Persuasion knowledge. The non-significant direct effect suggests that the influence of Derogatory behaviour on Purchase intentions is primarily mediated by Persuasion knowledge.

Purchase intentions mediated by Persuasion knowledge through Exaggerated behaviour: The results indicate a direct effect of 0.033 (p=0.708) and a significant indirect effect of 0.222 (p=0.001), significant at the 5% level (p<0.05). This indicates partial mediation, suggesting that Exaggerated behaviour significantly impacts Purchase intentions indirectly through Persuasion knowledge. The non-significant direct effect confirms that the influence of Exaggerated behaviour on Purchase intentions is mediated by Persuasion knowledge. The analysis confirms that AIR weakens the negative impact of persuasion knowledge on purchase intentions.

4.2.6. Analysis of moderating variables

The analysis explores the moderating effects of the anticipated inaction regret (AIR) on the relationships between persuasion knowledge (PK), purchase intentions (PI), and interaction (INT). The results of the model estimation are visualised in Fig. 4, and the corresponding path coefficients and significance levels are presented in Table 7.

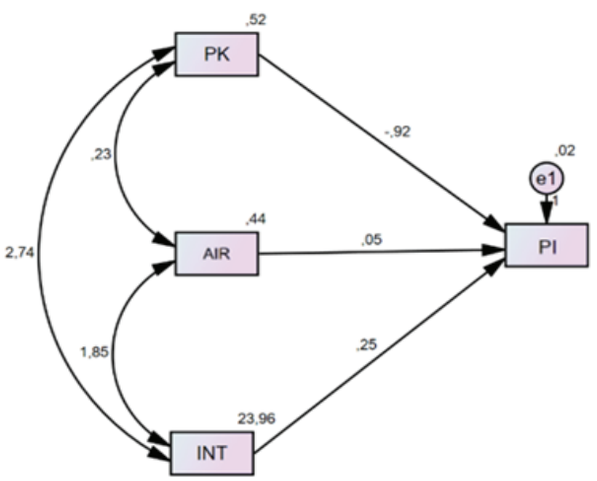

Fig. 4. Results of the moderating variable analysis. Source: The author's survey data 2024.

Table 7. Results of the effects of the moderating variable.

Path coefficients			Estimate	Standard error	Critical ratio	P-value
PI	<---	PK	-.919	.021	-43.630	***
PI	<---	AIR	.047	.018	2.662	.008
PI	<---	INT	.248	.003	74.959	***

Persuasion knowledge (PK); Purchase intention (PI); Anticipated inaction regret (AIR); Interaction (INT). Source: The author's survey data 2024.

The results show a strong negative relationship between persuasion knowledge (PK) and purchase intentions (PI), with a path coefficient of -0.919, a critical ratio (C.R.) of -43.630, and a highly significant p-value (*). This means that when consumers are more aware of persuasion tactics, they are less likely to make a purchase. However, AIR appears to moderate this relationship. The findings support Hypothesis H4, suggesting that AIR significantly reduces the negative effect of PK on PI. In other words, the fear of missing out or feeling regret for not taking action can be stronger than scepticism, leading consumers to still consider purchasing despite their persuasion knowledge (β=-0.919, p<0.001). AIR shows a positive and significant effect on PI, with a path coefficient of 0.047, C.R.=2.662, and p=0.008. This indicates that as consumers anticipate regret from not acting, their intention to purchase slightly increases. While the effect is smaller, it is still statistically meaningful. Additionally, interaction (INT) has a strong positive effect on PI (β=0.248, C.R.=74.959, p<0.001), showing that higher levels of interaction significantly boost consumers' purchase intentions.

In conclusion, the analysis reveals that persuasion knowledge reduces AIR, whereas purchase intentions and interaction are positively associated with it. These findings offer important insights into consumer behaviour, highlighting how scepticism, motivation to act, and engagement collectively influence the experience of anticipated regret in decision-making.

5. Discussion

This study's findings reveal nuanced dynamics between streamers' self-presentation behaviours and Generation Z consumers' purchase intentions in Vietnam's live-streaming commerce context. This finding demonstrates that AIR moderates the indirect path from streamer self-presentation to purchase intention through persuasion knowledge. It highlights how emotional motivators, especially anticipated

regret or fear of missing out, may suppress cognitive scepticism. This aligns with dual-process theories in consumer psychology, which suggest that affective responses can dominate rational evaluations in emotionally charged or impulsive purchase contexts. While helpful and empathetic behaviours positively influenced purchase intentions as hypothesised, the non-significant effects of flattering, derogatory, and exaggerated behaviours (H1c, H1d, H1e) warrant deeper examination. Having grown up in a media landscape saturated with influencer marketing, Generation Z consumers tend to exhibit heightened scepticism toward overtly promotional or inauthentic messaging [44, 61]. This suggests Vietnamese Generation Z consumers are more discerning than traditional consumer segments, potentially requiring more subtle persuasion approaches. The moderating role of anticipated inaction regret (H4) proved particularly insightful. Vietnamese consumers' strong aversion to "missing out" appears to override their persuasion knowledge, explaining why even sceptical viewers might still purchase during high-pressure live streams. This behaviour aligns with findings in behavioural economics, which show that anticipated regret can prompt impulsive or risk-acceptant decisions [49, 56].

The useful behaviour and empathetic behaviour of live streamers during the streaming process can positively activate higher purchase intentions among consumers, a result that aligns with the findings of S. Song, et al. (2024) [31]. Behaviours characterised by flattering behaviour, derogatory behaviour, and exaggerated behaviour do not promote purchase intentions among consumers. Future studies should re-examine how streamers' negative behaviours impact purchase intentions. The conceptual framework effectively anticipated the purchasing intentions of Generation Z based on persuasion knowledge. Academics, researchers, and market analysts can derive insights from these findings, which suggest that Generation Z is susceptible to influence in their consumer behaviour while engaging with live-streaming on e-commerce platforms. Additional variables that contribute to the predictive capacity of the model's persuasion knowledge enable market analysts to tailor self-presentation strategies that align with the distinctive preferences of Generation Z. The results indicate substantial applicability in altering Generation Z's attitudes towards their purchasing intentions on online streaming platforms.

The conduct of derogatory behaviour and exaggerated behaviour demonstrated by live streamers during broadcasts on online streaming platforms can facilitate the activation of elevated levels of persuasion knowledge pertaining to consumer purchasing decisions. In contrast, helpful, empathetic, and flattering behaviours did not significantly activate persuasion knowledge. Furthermore, the research examines persuasion knowledge as a mediating factor in the relationship between self-presentation behaviours and consumers' purchase intentions. Regret for inaction plays a moderating role in the relationship between persuasion knowledge and consumers' purchase intentions.

Marketers should prioritise helpful and empathetic behaviours in live streams to enhance purchase intentions. Conversely, exaggerated or derogatory behaviours should be avoided, as they trigger persuasion knowledge. Platforms can leverage these insights to train streamers and design interactive features that minimise consumer scepticism. This study offers critical managerial insights for live-streaming commerce stakeholders. Platforms should invest in certifying streamers' ethical promotion skills, emphasising authentic product demonstrations over exaggerated claims. Real-time AI analytics (e.g., sentiment tracking of live chats) can help brands detect consumer scepticism and dynamically adjust presentation styles. Platform designers could mitigate persuasion knowledge activation by integrating real-time peer review pop-ups and transparency badges for sponsored content. Future research should explore cultural variations in persuasion knowledge activation through cross-market comparisons, and employ neuroscientific methods like eye-tracking to decode real-time cognitive responses to streamer behaviours. The findings suggest that live-streaming platforms may consider real-time sentiment analysis tools powered by machine learning and natural language processing (NLP) to detect and respond to viewers' emotional reactions. This approach would enable streamers to dynamically adjust their content and interaction styles based on audience sentiment.

For practitioners, the author recommends training streamers to balance persuasion with authenticity while employing real-time analytics to monitor consumer reactions, coupled with platform designs

that strategically highlight peer reviews to mitigate persuasion knowledge effects. This study also propose the development of comprehensive training programs for streamers, focusing on ethical persuasion techniques. These programs could include guidelines on transparent communication, responsible use of urgency appeals, effective storytelling strategies, and maintaining authenticity to build trust with audiences. This study examines the influence of five distinct self-presentation behaviours exhibited by livestreamers on persuasion knowledge and consumer purchase intentions. The investigation encountered several limitations and challenges. Significantly, the sample is exclusively comprised of Generation Z individuals. The article offers theoretical insights pertinent to platforms and enterprises participating in e-commerce live-streaming. This presents a novel framework for comprehensively understanding the cognitive and emotional states of consumers in the context of live-streaming. Such insights may facilitate enhancements in consumer engagement and the innovation of services, thereby contributing to the sustainable development of this emerging consumption paradigm. Numerous empirical investigations have examined the influence of characteristics inherent to live streamers on consumer purchasing behaviour. The live-streaming modality enhances authenticity, visualisation, and interactivity, thereby mitigating the constraints associated with conventional online shopping, and significantly impacting consumer purchase intentions [62, 63]. As a result, forthcoming research may enhance comprehension of the effects of live streamers on consumer behaviour by exploring additional behavioural variables such as impulsive buying behaviour [64], or by employing the stimulus-organism-response (SOR) framework [65] alongside theories of uses and gratifications, perceived network size, perceptions of digital celebrities, and shopping orientations. A key limitation of this study stems from the use of convenience sampling, a non-probability technique. Although this approach enabled rapid data collection and yielded an adequate sample size (n=264) within the designated timeframe, it resulted in an over-representation of urban, female, and university-educated respondents, primarily from Ho Chi Minh City (63.6%) and Hanoi (30.3%). Consequently, the relatively high tolerance for exaggerated and derogatory streamer behaviours and the pronounced moderating effect of anticipated inaction regret observed in this study may be particularly characteristic of digitally native, urban Generation Z consumers. Therefore, while the findings are robust within the sampled population, caution should be exercised when generalising the results to rural Generation Z consumers or other age groups in Vietnam. Future research endeavours might investigate additional variables and the variances that affect these adverse psychological mechanisms to fortify the theoretical framework. These results contribute to the ongoing discourse on Generation Z's cognitive responses to digital persuasion. The rejection of hypotheses concerning flattery, derogation, and exaggeration suggests that Generation Z consumers in Vietnam are not easily influenced by traditional or aggressive persuasion tactics. Instead, authenticity, emotional resonance, and interactive communication appear to be more impactful [31]. Moreover, the moderating role of AIR confirms that emotional mechanisms - such as fear of missing out (FOMO) - can override cognitive scepticism, driving purchase intentions even when persuasion knowledge is activated [49, 56]. Additionally, the author suggests the cautious use of AIR-based prompts, such as countdown timers or low-stock notifications. However, it is crucial that these tools are applied responsibly to avoid emotionally manipulating consumers.

6. Conclusions

Although convenience sampling offered practical advantages, the over-representation of urban, female, and highly educated respondents from major cities limits the generalisability of the present findings to the wider and more diverse Vietnamese Generation Z population. To address this, future research should: (1) employ stratified sampling encompassing both urban and rural populations to better represent Vietnam's socioeconomic diversity; (2) incorporate behavioural data (e.g., purchase records, engagement metrics) to complement self-reported measures; and (3) conduct cross-cultural comparisons with other Southeast Asian markets. These methodological improvements would enhance the validity and applicability of the findings across different demographic and cultural contexts.

COMPETING INTERESTS

The author declares that there is no conflict of interest regarding the publication of this article.

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