

From Growth Observation to Continuous Payment: How Growth Visibility Perception of Idol Development Influences Generation Z Fans' Consumption Intention

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Abstract

With the development of the digital entertainment industry, "growth-idol" has gradually attracted more attention from young people. Unlike traditional idols, these idols show their growth process to fans through social media, live streaming platforms, and variety shows. That allows fans to see their transformation from trainees to established artists. This public display of their growth attracts a large number of Generation Z fans and promotes their consumption behavior. Therefore, researching the factors influencing fans' continued willingness to pay is a great significance. This study aims to explore the impact of growth visibility perception on Generation Z fans' continued willingness to pay. Based on interaction theory and customer engagement theory, the study uses emotional attachment and fan sense of accomplishment as mediating variables. And the study adds fan participation into the research framework. A questionnaire survey was used to collect 201 valid questionnaires. And SPSS was used for data analysis. The results show that growth visibility perception significantly increases fans' emotional attachment and fan sense of accomplishment. Meanwhile, emotional attachment and a sense of accomplishment among fans significantly increase their willingness to pay. This indicates that when fans can clearly see their idol's growth progress, they are more likely to establish an emotional connection with their idol and gain a sense of accomplishment from accompanying their idol's growth activities. Then fans will be more willing to provide long-term support and spending. This study contributes to enriching research on the fan economy and can also provide a reference for entertainment companies in developing fan management and marketing strategies.

Keywords

Perceived growth visibility, Emotional Attachment, fan sense of accomplishment, willingness to continue paying, Generation Z fans.

1. Introduction

In recent years, with the rapid development of the digital entertainment industry, Growth-Oriented Idols have gradually become an important development model in the entertainment industry. Different from traditional idols, Growth-Oriented Idols will show their growth process to fans, including daily training, skill improvement and personal growth stories [1]. Through websites such as social media, talent shows, fan communities, and live broadcast platforms, fans can continue to observe the entire process of idols transforming from ordinary trainees to mature artists. The growth of idols is open and transparent, so that fans can more truly perceive the growth trajectory of idols and gain unique emotional experiences [2].

At the same time, Generation Z has become the most important consumer in the current entertainment market. Generation Z usually refers to people born between 1997 and 2012.

They often spent their teenage years accompanied by mobile phones. This generation is also called the "mobile phone generation", and this group of people is called "digital natives". Compared with fans of Generation Y, Generation Z not only pays attention to the achievements of their idols, but also pays more attention to the emotional value brought by participating in the growth process of their idols [2]. They will use social media to obtain information, express opinions, and participate in interactions, and have a high awareness of participation and willingness to consume.

In the cultivating idol model, fans' support behavior is not limited to following the idol's online design account and watching live broadcasts on the platform, but extends to a variety of consumption forms. For example, fans will purchase peripheral products, membership services, concert member priority purchases, online data and support activities, etc. These consumption behaviors not only generate important income for entertainment companies, but also become a key driving force for the sustainable development of idols. [3] Therefore, how to improve fans' long-term willingness to pay and continuous payment behavior has become a key issue for the entertainment industry.

Existing research indicates that the emotional bond formed between fans and idols significantly influences their consumption behavior [4]. When fans witness their idols' growth and significant progress, they are more likely to develop emotional attachment and derive satisfaction from their idols' success [1]. However, current research on how the perceived visibility of growth in idol development influences fans' continued willingness to pay remains relatively limited. Therefore, this study focuses on Generation Z fans to explore the impact of perceived growth visibility on continued willingness to pay, and further analyzes the roles of emotional attachment and fan sense of accomplishment in this process.

Existing research primarily focuses on the impact of variables such as influencer credibility, brand attitude, parasocial relationship, and purchase intention on consumer behavior. These studies generally conclude that positive evaluations of idols or influencers increase consumers' willingness to purchase products or services.

However, existing literature still has several shortcomings. First, most studies focus on the idol or influencer as a whole, their communication channels, and the effectiveness of brand collaborations, while rarely exploring the variable of "growth visibility perception." For idols who develop into stars, fans not only pay attention to their current performance but also value the changes and progress they make during their growth process. Therefore, growth visibility perception may be an important factor influencing fan behavior, but relevant empirical research remains insufficient.

Secondly, existing research largely focuses on consumers' immediate purchase intention, while less attention is paid to continuous willingness to pay [5]. In the context of emerging idols, entertainment companies are more concerned with whether fans are willing to continuously purchase idol-related products and services over the long term, rather than engaging in one-off consumption. Therefore, research on continuous willingness to pay has greater practical value. Furthermore, current research on fan consumption behavior primarily focuses on online celebrities such as sports stars and traditional entertainment stars, while research on idol groups

that have developed from childhood idols is relatively limited [6]. Particularly regarding Generation Z fans, how the visibility of their growth process further influences their willingness to continue paying through emotional attachment and fan sense of accomplishment remains a subject of insufficient research.

Based on these research gaps, this study aims to explore the impact of perceived growth visibility on the willingness of Generation Z fans to continue paying, and further analyze the

roles of emotional attachment and fan sense of accomplishment within this context, thereby enriching research findings in the fields of fan culture and consumer behavior.

2. Literature Review and Hypotheses

2.1. Growth Visibility Perception

In this study, Growth Visibility Perception - GVP is operationalized and measured using Items Q3–Q8.

3. I can clearly observe the growth process of this nurturing-type celebrity.
4. The changes in this celebrity's growth are obvious and perceptible.
5. I can learn about the progress of this celebrity through programs or platforms.
6. Seeing this celebrity grow step by step has left a deep impression on me.
7. The growth process of this celebrity makes me feel real and concrete.
8. I can clearly sense the improvement in this celebrity's abilities.

These questions are mainly to collect fans' subjective feelings about the dimensions of clarity, observability, continuity and concreteness in the development process of idols.

The theoretical basis of growth perception (GVP) is mainly related to the contents of fan culture, fan economy and quasi-social communication theory. When fans can clearly observe and understand the growing progress of idols, they will gain a stronger sense of participation in the growing process of idols. This perceived sense of participation will deepen the psychological input and emotional connection of fans. [6] suggested that these changes involve the strengthening of quasi-social relations, and also help to promote fans to continuously participate in community activities and generate consumption behaviors. GVP is a key pre-perception factor in the correlation among IDOL growth content exposure, fan emotional input and follow-up behavior results.

2.2. Emotional Attachment

[7] argued that emotional attachment refers to the stable and strong emotional connection formed between fans and idols, including the feelings of closeness, care, identification and emotional resonance, it belongs to the deep emotional connection established by fans and idols at the psychological level.

Emotional connection: emotional connection is the core expression of emotional attachment, which refers to the psychological intimacy, concern, empathy and belonging of fans to idols. [4] found that fans will have positive emotions because of the growth and achievements of idols, and will also actively keep paying attention to idols. This kind of connection can enhance the fan's sense of companionship and willingness to invest, and is an important pre-factor affecting the fan's behavior and loyalty.

Parasocial Interaction [8] refers to the one-way but near-real "face-to-face" interaction between fans and idols through media. [7] proposed that fans perceive idols as approachable figures, generating sustained attention, emotional resonance, and a sense of companionship, thereby promoting the formation of emotional attachment. It is an important psychological mechanism connecting perceived growth, emotional attachment, and fan behavior.

2.3. Fans' Sense of Accomplishment

[9], as well as [10], suggested that Fan Sense of Accomplishment refers to the positive psychological experience that fans obtain from witnessing, accompanying, and participating in the idol's growth process, including feelings of pride, fulfillment, meaning, and subjective achievement. It reflects fans' perceived value and sense of harvest generated from the whole process of following the idol's progress, breakthroughs, and success.

[9] found that When Fans clearly perceive the idol's progress, changes, and improvements over time, regard themselves as important witnesses of the idol's growth, and thus obtain inner fulfillment. This sustained witnessing experience strengthens fans' emotional involvement and becomes the direct source of accomplishment.

[10] argued that Fans regard their own company and contribution as valuable and indispensable parts of the idol's success, which further enhances pride and accomplishment. It is a key psychological mechanism linking growth visibility, emotional experience, and fan behavioral outcomes.

2.4. Continuous Willingness to Pay

Continuous willingness to pay means a fan's intention and willingness to continue spending money for their idols, for example products like cosmetics, clothes, shoes, services and activities like Autograph Signing Events related to their favorite celebrities in the future or for a long time. In the idol industry, fans need to spend money on concert tickets, albums, memberships, subscription, merchandise, voting activities and many forms of support. Continuous willingness to pay reflects the sustainability of fan consumption behavior and it's also a very important way to see the long-term support.

Previous studies have found that emotional factors play a significant role in influencing consumers' purchase intentions and loyalty. Fans who have deep and strong emotional connections with idols are more likely to continue supporting them, like continuing to buy a brand which is sponsored by the star or idol he likes. Besides, if fans have more positive fan experience and satisfaction like can get the liked celebrity responds to the comments or gets the "fan service", theses could strengthen fans' commitment and encourage them continuing to buy things to support their celebrity [11].

Willingness to pay may not solely be driven by product value but also influenced by emotional attachment and personal fulfillment. Fans may buy products endorsed by their favorite celebrities, even if the quality of these products is poor. Fans think their spending is a way to show support and contribute to the success of their favorite celebrities. Therefore, continuous willingness to pay serves as the dependent variable in this study.

2.5. Fan Participation

Fan participation means the degree to which fans actively engage in activities related to their favorite celebrities or idols. These activities may include voting activities, sharing content and reposting the video on social media, buying merchandise, joining fan communities and activities, participating in online discussions, helping with publicity and so on. All of these activities shows fan participation and will reflects the level of involvement and commitment to the celebrities they like and support.

According to Customer Engagement Theory, active participation can strengthen the relationship between individuals and the object of their interest. Fans who often partci[ate in these activities will develop a stronger emotional bonds. They can also have a greater sense of belonging, satisfaction and achievement through these activities. Finally , they are more likely to continue supporting celebrities both emotionally and financially [12].

Furthermore, fan participation may strengthen the effects of emotional attachment and fan accomplishment on consumption behavior. If the level of fan engagement and participation is higher, it means they have spent more time, money and energy on the celebrities, and have incurred higher sunk costs. In such cases, they will be more likely to continue supporting their favorite stars.[13, 14]

2.6. Theoretical Framework

2.6.1. Parasocial Interaction Theory

Parasocial Interaction Theory defines a phenomenon which is that audiences will build an emotional connection with media personalities and celebrities, even if there is no physical interaction between them. [8] Because fans are repeatedly exposed to the activities of celebrities, they may feel emotionally connected to them, although they do not personally interact with them. Idol development shows also provide fans with the opportunity to follow the developmental process of celebrities.

2.6.2. Customer Engagement Theory

The Customer Engagement Theory is based on the importance of engagement and involvement as a factor that influences consumer behavior. [3] People who get engaged with products or brands even with their surrounding community get a chance to develop loyalty and commitment. The engagement with idol fan communities can result in stronger emotional experience and loyalty. For fans, a high level of engagement means they have devoted more time, energy and money, then they will continue to support.

2.6.3. Conceptual Framework

Based on these theories, this study proposes that Growth Visibility Perception positively influences Emotional Attachment and Fan Sense of Accomplishment. These two factors subsequently increase fans' Continuous Willingness to Pay. Fan Participation is included as a moderating variable because active engagement may strengthen these relationships.

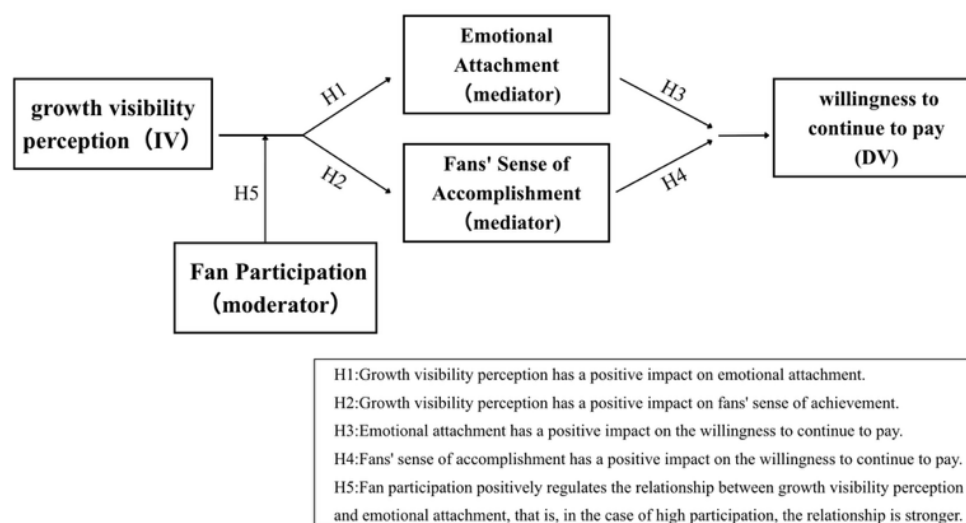


Figure 1. The Conceptual Research Model

2.7. Hypothesis Development

2.7.1. Growth Visibility Perception and Emotional Attachment

Growth Visibility Perception refers to fans' ability to observe and recognize the progress and development of idol celebrities over time. In idol development programs, fans can see celebrities' improvements in skills, stage performance and achievements. This visibility is growth visibility and allows fans to continue supporting their favorite idols in the growth journey.

As indicated by Parasocial Interaction Theory, long-term and consistent exposure to celebrities contributes towards the development of an emotional bond between the fans and celebrities. Emotions play an integral part of being a fan in the digital world, as the fans constantly invest

their emotions into following and cheering for their idols. With increasing growth and success of the idols, emotional attachment becomes easier [1].

Therefore, this study proposes the following hypothesis:

H1: Growth Visibility Perception has a significant positive effect on Emotional Attachment.

2.7.2. Growth Visibility Perception and Fans' Sense of Accomplishment

When the celebrities they support achieve success, Fans often have a sense of pride, satisfaction and achievement. In idol development programs, fans will not only observe celebrities' growth but also actively participate in activities, for example supporting their development through voting, promotion, and consumption activities like buying products related to their idols. So fans may think that the idols' achievements are partially connected to their own efforts.

Fan groups also foster the practice of engaging in community activities for the support of stars. With continued engagement in such activities, fans can be expected to develop a greater sense of accomplishment in their efforts when stars reach significant points in their careers [2].

Therefore, this study proposes the following hypothesis:

H2: Growth Visibility Perception has a significant positive effect on Fans' Sense of Accomplishment.

2.7.3. Emotional Attachment and Continuous Willingness to Pay

Emotional Attachment is defined as the emotional connection that fans form with their idol stars. Consumers with an emotional attachment were found to be more loyal and committed towards the objects of their attachment.

An important element of maintaining fan activities includes emotional engagement. [1] Emotional commitment and loyalty contribute greatly to the finances that fans put towards participating in activities associated with their idols. Thus, emotionally attached fans are likely to purchase albums, memberships, merchandise or other things related to their idols.

Therefore, this study proposes the following hypothesis:

H3: Emotional Attachment has a significant positive effect on Continuous Willingness to Pay.

2.7.4. Fans' Sense of Accomplishment and Continuous Willingness to Pay

Fan Sense of Accomplishment means the feeling of pride, satisfaction, and achievement that fans experience when seeing the success of their favorite celebrities. Fans who believe that their contributions have made a difference in their star idols' success are more likely to continue supporting their idols.

Fans who think their contributions have greater value and significance, are more willing to continue investing financial resources in supporting celebrities. The feeling of accomplishment generated from supporting an idol's success may encourage fans to maintain long-term consumption behavior and continue paying for idol-related products and activities.

Therefore, this study proposes the following hypothesis:

H4: Fans' Sense of Accomplishment has a significant positive effect on Continuous Willingness to Pay.

2.7.5. Moderating Effect of Fan Participation

Fan Participation means how invested fans become in various activities which are centered around their idols. Activities like voting, sharing content and videos, joining groups, attending events, and buying merchandise related to their idols. Getting involved like this enhances their connection to both the stars and fellow fans. So, it builds a stronger community all around.

[2] said social media fan groups can boost community involvement and fan commitment. Fans who keep participating in these groups become more interested in their favorite celebs' progress. This continuous interaction makes them feel more emotionally attached. So, compared to less involved fans, they react much stronger to celeb successes.

Furthermore, [1] argued that emotional engagement is a central characteristic of digital fandom. Fans who spend more time, money and effort in supporting celebrities are more emotionally involved in their idols' development process. Because the greater the investment cost, the stronger the connection will be. Then fans with higher levels of participation are more likely to transform their perceptions of idol growth into emotional attachment compared to less active fans. Therefore, fan participation may strengthen the positive effect of Growth Visibility Perception on Emotional Attachment.

Therefore, this study proposes the following hypothesis:

H5: Fan Participation positively moderates the relationship between Growth Visibility Perception and Emotional Attachment, such that the positive effect of Growth Visibility Perception on Emotional Attachment is stronger when the level of Fan Participation is higher.

3. Research Methodology

3.1. Research Design

This study employed quantitative research methods and collected data by questionnaires. Quantitative research can analyze large amounts of data from respondents. This method collected and analyzed basic information and consumption behaviors, ultimately quantifying respondents' opinions, background characteristics, and behaviors as percentages and frequencies.

This study also is the category of descriptive research. It focus on describing the basic characteristics of respondents, such as gender, age, fan experience, and spending amount. This data helps to understand the respondents' composition and gives a solid foundation for subsequent analysis.

3.2. Sampling Method and Sample Size

This study employs a non-probability sampling method. It use convenience sampling to select respondents. Due to time constraints and the specific characteristics of the research population, convenience sampling is more suitable for this study.

The target respondents for this study are Gen Z individuals. They have followed idols during their trainee period and have made paid purchases, such as buying albums, memberships, merchandise, voting, fan support items, or participating in other paid activities supporting their idols. Therefore, two screening questions were included at the beginning of the questionnaire. Screening questions ensure that respondents met the research requirements.

This research employs quantitative research. It collected data through questionnaires and used SPSS for frequency analysis, descriptive analysis, correlation analysis, and multiple regression analysis. In addition, a number of respondents' data support the analysis results. These data are reliable and representative.

3.3. Data Collection Procedure

The research collected data through an online questionnaire. The questionnaire was created using the Wenjuanxing mini-program and sent to potential respondents via various means, such as social media (Xiaohongshu, Douyin, etc.), communication software (QQ, WeChat, etc.), and email. Before respondents completed the questionnaire, informed them of the research purpose: it was solely for academic research, and their personal information would be properly handled after the research was completed. Took 1.5 months to collect the questionnaires, ensuring their authenticity and validity.

3.4. Survey Instrument

A structured questionnaire as the primary research instrument. The questionnaire consisted of three sections: screening questions, measurement items for the research variables, and demographic information.

The research variables included Growth Visibility Perception (GVP), Emotional Attachment (EA), Fans' Sense of Accomplishment (FSA), Continuous Willingness to Pay (WTP), and Fan Participation (FP).

All measurement items were assessed using a five-point Likert scale (Appendix A), where 1 represented strongly disagree and 5 represented strongly agree. Since the existing research does not have a specific maturity scale for growth visibility, the questionnaire questions were adapted according to the relevant scales. The demographic section collected respondents' information, including years of fandom, and the amount of money spent on idol-related products and services.

3.5. Data Analysis Techniques

This study used SPSS Statistics for data analysis. First, frequency and percentage analyses examine the demographic characteristics of the respondents. Next, descriptive statistics, including the mean and standard deviation, were calculated to assess the overall distribution of the research variables.

Subsequently, Cronbach's Alpha evaluates the internal consistency of the measurement scales, while Exploratory Factor Analysis was conducted to assess their construct validity.

Finally, Pearson correlation analysis was performed to examine the relationships among the research variables, and multiple regression analysis tests the proposed hypotheses, including the moderating effect of Fan Participation.

4. Data Analysis and Results

4.1. Descriptive Analysis

4.1.1. Descriptive statistical analysis (frequency)

Table 1. Frequency Statistics Results

Questionnaire item	Options	Frequency	Percentage
Your gender	Man	83	41.294
	Woman	118	58.706
Your age group	Under the age of 18	11	5.473
	18 to 22 years old	73	36.318
	23 to 26 years old	99	49.254
	Over 27 years old	18	8.955
The time you spend idolizing someone	Less than one year	72	35.821
	1 to 3 years	76	37.811
	3 to 5 years	37	18.408
	More than 5 years	16	7.96
Your monthly spending amount on the related content of the celebrity in this category:	0 RMB	26	12.935
	1~200 RMB	117	58.209
	200~500 RMB	41	20.398
	More than 500 RMB	17	8.458

A total of 201 valid questionnaires were collected in this survey. The gender distribution of the samples is shown in the Table 1: Among them, 83 male respondents accounted for 41.3% of the total sample; 118 female respondents accounted for 58.7% of the total sample. Overall, the proportion of female respondents was higher than that of male respondents, which is consistent with the existing research observations that the fan base of nurturing-type celebrities is mainly composed of females.

The age distribution of the sample is shown in the Table 1: Among them, 11 respondents were under 18 years old, accounting for 5.5% of the total sample; 73 respondents were between 18 and 22 years old, accounting for 36.3%; 99 respondents were between 23 and 26 years old, accounting for 49.3%; and 18 respondents were over 27 years old, accounting for 9.0%. Overall, the Z-generation group aged between 23 and 26 accounted for the highest proportion (49.3%), followed by the group aged between 18 and 22 (36.3%), and the combined proportion of these two groups exceeded 85%. This indicates that the sample of this survey is mainly concentrated in the age range of 18 to 26 years old, which is in line with the research positioning of "Z-generation fans".

The distribution of the sample's Fan Experience is shown in the Table 1: Among the respondents, 72 people have been star-watching for less than one year, accounting for 35.8% of the total sample; 76 people have been star-watching for 1 to 3 years, accounting for 37.8%; 37 people have been star-watching for 3 to 5 years, accounting for 18.4%; and 16 people have been star-watching for more than 5 years, accounting for 8.0%. Overall, the group with a star-watching duration of 1 to 3 years has the highest proportion (37.8%), followed by the group with less than 1 year of star-watching (35.8%), and the combined proportion of these two groups exceeds 70%. This indicates that the sample of this survey is mainly composed of short- and medium-term fans, and the majority of the respondents' star-watching experiences are concentrated within 3 years.

Years of Fandom Experience by the sample is shown in the Table 1: Among them, 26 respondents spent 0 yuan per month, accounting for 12.9% of the total sample; 117 respondents spent between 1 and 200 yuan, accounting for 58.2%; 41 respondents spent between 200 and 500 yuan, accounting for 20.4%; and 17 respondents spent more than 500 yuan, accounting for 8.5%. Overall, the group with monthly expenditure between 1 and 200 yuan has the highest proportion

(58.2%), accounting for more than half. The combined proportion of respondents spending less than 200 yuan is over 70%, indicating that most Z-generation fans mainly make moderate to low-level investments in related products of idol stars, but there is also a certain proportion of high-spending groups (those spending more than 500 yuan account for 8.5%).

4.1.2. Descriptive statistical analysis (mean)

all skewness values ranged from -0.052 to -0.426, while kurtosis values ranged from -1.056 to -0.549. Since all values fell within the acceptable range of -2 to +2, the data were considered normally distributed.

"GVP_mean" Growth Visibility Perception had a mean of 3.46 (SD = 0.78), "EA_mean" Emotional Attachment had a mean of 3.39 (SD = 0.85), "FSA_mean" Fan Sense of Accomplishment had a mean of 3.37 (SD = 0.86), "WTP_mean" Continuous Willingness to Pay had a mean of 3.37 (SD = 0.85), "FP_mean" Fan Participation had a mean of 3.49 (SD = 0.85).

The results of the normality test indicate that the skewness values for all variables are close to zero. The absolute values of kurtosis are all below 3. So the data are approximately normally distributed and satisfying the assumptions required for subsequent statistical analyses.

4.1.3. Differential Analysis

This study employed an independent-samples t-test and one-way analysis of variance (ANOVA).

First, regarding gender, the results indicate that male and female respondents have significant differences in all variables and Generation Z fan behavioral characteristics ($p < 0.05$). The mean comparison data shows that female respondents scored higher than male respondents across all variables. That suggests female fans exhibit greater attention to idols' developmental journeys, stronger Emotional Attachment, and a higher willingness to pay.

Second, with respect to monthly spending on idol-related products and services, significant differences were observed across different spending groups in GVP, EA, FSA, WTP, FP, and Generation Z fan behavioral characteristics ($p < 0.05$). Overall, the mean scores of all variables increased progressively with higher levels of spending. Fans who spent more than RMB 500 per month reported the highest scores, whereas those with no spending reported the lowest. These findings suggest that higher-spending fans tend to demonstrate stronger emotional investment, greater participation, and a higher level of continuous support for their idols.

Finally, regarding age, no statistically significant differences were found among different age groups in GVP, EA, FSA, WTP, FP, or Generation Z fan behavioral characteristics ($p > 0.05$). Therefore, respondents of different age groups exhibited similar patterns across the research variables, indicating that age is not a significant factor influencing the variables examined in this study.

4.2. Reliability analysis

Table 2. Reliability Statistics

Dimension Name	Cronbach Alpha	Number of items
Perception of growth visibility	0.859	6
Emotional Attachment	0.868	5
Fan's sense of achievement	0.870	5
The willingness to continue making payments	0.903	7
Fan participation level	0.852	5
Behavioral Characteristics of Generation Z Fans	0.903	6

Reliability analysis was conducted to examine the internal consistency of the measurement scales, using Cronbach's Alpha coefficient as the primary indicator. In general, a Cronbach's Alpha value above 0.70 indicates acceptable reliability, while a value above 0.80 suggests high internal consistency.

This study tested the reliability of Growth Visibility Perception (GVP), Emotional Attachment (EA), Fans' Sense of Accomplishment (FSA), Continuous Willingness to Pay (WTP), Fan Participation (FP), and Generation Z Fan Behavior (ZFB). As shown in Table 2, the Cronbach's Alpha values for these variables were 0.859, 0.868, 0.870, 0.903, 0.852, and 0.903. Respectively, all exceeding the threshold of 0.80.

In addition, all item-to-total correlations (CITC) were above 0.40, and the removal of any item did not result in a higher overall Alpha value. These results indicate that all measurement items demonstrate good internal consistency and stability.

Table 3. Overall Reliability Analysis

Cronbach Alpha	Sample size	Number of items
0.937	201	34

As shown in Table 3, the overall reliability coefficient indicates that the standardized Cronbach's Alpha is 0.937, suggesting that the questionnaire demonstrates excellent overall reliability.

4.3. Validity analysis

Validity analysis assess whether the questionnaire effectively captures the true meanings of the research constructs. This study employed the KMO measure and Bartlett's Test of Sphericity to evaluate construct validity.

The results show that the KMO value is 0.918, which is higher than the recommended threshold of 0.80, indicating excellent sampling adequacy. In addition, Bartlett's Test of Sphericity is statistically significant ($\chi^2 = 3740.546$, $p < 0.001$), confirming that the data are suitable for factor analysis and that the questionnaire demonstrates good construct validity.

Further exploratory factor analysis revealed that six common factors with eigenvalues greater than 1 were extracted. The rotated variance explained by each factor was 13.087%, 12.010%, 10.606%, 9.953%, 9.795%, and 9.464%, respectively, with a cumulative variance explained of 64.914%, indicating that the extracted factors adequately explain the information contained in the observed variables.

In addition, all item communalities exceeded 0.40, and all factor loadings met acceptable standards, demonstrating a strong correspondence between items and their respective constructs. Therefore, the measurement scale exhibits satisfactory convergent validity and construct validity, providing a solid foundation for subsequent statistical analysis and hypothesis testing.

4.4. Hypothesis testing

4.4.1. Correlation analysis

Pearson correlation results revealed that all variables were significantly and positively correlated with each other at the 0.001 level.

1.GVP showed significant positive correlations with EA ($r = 0.400$, $p < 0.001$), FSA ($r = 0.397$, $p < 0.001$), WTP ($r = 0.447$, $p < 0.001$), FP ($r = 0.439$, $p < 0.001$), and ZFB ($r = 0.528$, $p < 0.001$).

2.EA was significantly positively correlated with FSA ($r = 0.326$, $p < 0.001$), WTP ($r = 0.393$, $p < 0.001$), FP ($r = 0.335$, $p < 0.001$), and ZFB ($r = 0.389$, $p < 0.001$).

3.FSA showed significant positive correlations with WTP ($r = 0.377$, $p < 0.001$), FP ($r = 0.320$, $p < 0.001$), and ZFB ($r = 0.391$, $p < 0.001$).

4.WTP was significantly positively correlated with FP ($r = 0.510$, $p < 0.001$) and ZFB ($r = 0.418$, $p < 0.001$).

5.FP showed a significant positive correlation with ZFB ($r = 0.412$, $p < 0.001$).

The strongest correlation was observed between GVP and ZFB ($r = 0.528$), followed by WTP and FP ($r = 0.510$). All correlations were in the expected direction, providing preliminary support for the proposed hypotheses.

4.4.2. Linear regression analysis

Four simple linear regression models were estimated to test H1 through H4. All four paths were statistically significant at $p < .001$. GVP significantly predicted EA with $B = 0.437$, $B = 0.400$, $R^2 = 0.160$ and FSA with $B = 0.439$, $B = 0.397$, $R^2 = 0.158$. EA significantly predicted WTP with $B = 0.394$, $B = 0.393$, $R^2 = 0.155$, and FSA significantly predicted WTP with $B = 0.372$, $B = 0.377$, $R^2 = 0.142$. These results provide full support for H1, H2, H3, and H4, indicating that perceived growth visibility enhances fans' emotional attachment and sense of accomplishment, which in turn increase their willingness to continue paying.

To test H5, a hierarchical multiple regression analysis was conducted. The interaction term between GVP and FP significantly predicted EA after controlling for the main effects, $\beta = 0.303$, $t = 4.952$, $p < .001$. The addition of the interaction term resulted in a significant increase in R^2 , $\Delta R^2 = 0.089$, $F_{\text{change}} = 24.522$, $p < .001$. These results provide full support for H5, indicating that fan participation positively moderates the relationship between growth visibility

perception and emotional attachment, such that the positive effect of GVP on EA is stronger when fan participation is high.

The results revealed that all five hypotheses were supported at the .001 significance level.

For H1, Growth Visibility Perception (GVP) had a significant positive effect on Emotional Attachment (EA), $B = 0.437$, $SE = 0.071$, $\beta = 0.400$, $t = 6.163$, $p < .001$, with GVP explaining 16.0% of the variance in EA ($R^2 = 0.160$, $F = 37.98$).

For H2, GVP significantly predicted Fan Sense of Accomplishment (FSA), $B = 0.439$, $SE = 0.072$, $\beta = 0.397$, $t = 6.099$, $p < .001$, $R^2 = 0.158$, $F = 37.20$.

For H3, EA significantly predicted Continuous Willingness to Pay (WTP), $B = 0.394$, $SE = 0.065$, $\beta = 0.393$, $t = 6.032$, $p < .001$, $R^2 = 0.155$, $F = 36.39$.

For H4, FSA significantly predicted WTP, $B = 0.372$, $SE = 0.065$, $\beta = 0.377$, $t = 5.737$, $p < .001$, $R^2 = 0.142$, $F = 32.92$.

For H5, a multiple regression analysis was conducted to test the moderating role of Fan Participation (FP) on the relationship between GVP and EA. The interaction term $GVP \times FP$ significantly predicted EA after controlling for the main effects, $B = 0.385$, $SE = 0.078$, $\beta = 0.303$, $t = 4.952$, $p < .001$, with the addition of the interaction term explaining an additional 8.9% of the variance in EA, $\Delta R^2 = 0.089$, $F_{\text{change}} = 24.522$, $p < .001$.

All five hypotheses were supported. GVP positively influenced both EA and FSA, while both EA and FSA positively influenced WTP. Furthermore, fan participation positively moderated the relationship between GVP and EA, such that the positive effect of GVP on EA was stronger when fan participation was high.

4.4.3. Mediation effect analysis

To examine the mediating effect of Fans' Sense of Accomplishment (FSA) between Growth Visibility Perception (GVP) and Continuous Willingness to Pay (WTP), this study conducted regression analysis.

The results show that GVP has a significant positive effect on WTP ($\beta = 0.489$, $p < 0.001$), indicating that when fans can clearly perceive the growth process of idols, their willingness to continue paying significantly increases. Meanwhile, GVP also has a significant positive effect on FSA ($\beta = 0.439$, $p < 0.001$), suggesting that fans experience a stronger sense of psychological satisfaction and accomplishment when witnessing idols' development.

Furthermore, when both GVP and FSA are included in the same regression model predicting WTP, both variables remain statistically significant. However, the regression coefficient of GVP decreases from 0.489 to 0.386, while FSA continues to show a significant positive effect on WTP ($\beta = 0.234$, $p < 0.001$).

These results indicate that Fans' Sense of Accomplishment partially mediates the relationship between Growth Visibility Perception and Continuous Willingness to Pay. In other words, GVP not only directly enhances fans' willingness to continue paying but also indirectly promotes it by strengthening their sense of accomplishment. Therefore, the hypothesis regarding the mediating effect of FSA is supported.

4.4.4. Adjustment effect analysis

To examine the moderating effect of Fan Participation (FP) on the relationship between Growth Visibility Perception (GVP) and Emotional Attachment (EA), this study employed hierarchical regression analysis.

The results show that GVP has a significant positive effect on EA ($\beta = 0.437$, $p < 0.001$), indicating that when fans can clearly perceive idols' growth process, they are more likely to develop Emotional Attachment. After adding FP into the model, both GVP ($\beta = 0.342$, $p < 0.001$) and FP ($\beta = 0.197$, $p < 0.01$) remain significant predictors of EA.

Furthermore, when the interaction term between GVP and FP is included, it shows a significant positive effect on EA ($\beta = 0.385$, $p < 0.001$), and the explanatory power of the model increases from 15.6% to 27.0%. These results indicate that FP plays a significant moderating role in the relationship between GVP and EA.

In particular, compared with low-participation fans, high-participation fans are more likely to transform their perception of idols' growth into Emotional Attachment. When fans actively engage in support activities, community interactions, and idol-related affairs, their attention to and involvement in idols' development are further strengthened, leading to a stronger emotional connection. Therefore, it fully proves the hypothesis that fan participation has a regulatory effect.

5. Discussion and Conclusion

5.1. Research Discussion

This study mainly has five findings. The first one is that growth visibility perception has a positive impact on emotional attractiveness ($\beta = 0.400$, $p < .001$). This finding proves that when fans can clearly see the growth process of idols will create stronger emotional connection, the growth idol model is easier to make emotional connection than traditional idol model, and fans will see themselves as a part of idol's growth process. This result is consistent with researches of Yin, Y. (2021), Özer, M., Özer, A., Ekinci, Y., & Koçak, A. (2022), Zheng, L., & Xu, Y. (2024).

Second one is growth visibility perception has a positive impact on fan sense of accomplishment ($\beta = 0.397$, $p < .001$). This result discusses that fans will have pride after seeing idol's growth, fans also think that their support enhances the success of idol, and fans will receive psychological satisfaction by companing with idol's growth. Customer engagement theory and fan economy theory support this result.

The third finding is that emotional attachment has a positive impact on continuous willingness to pay ($\beta = 0.393$, $p < .001$). This finding explains that if emotional connection is stronger, then continuous willingness to pay is higher. And fan consumption is not only buying products, but also to express emotional support. This finding also proves that emotional attachment will enhance long-term loyalty.

The fourth one is fan sense of accomplishment has a positive impact on continuous willingness to pay ($\beta = 0.377$, $p < .001$). It discusses that fans can feel accomplishment from the success of idol, accomplishment drives continuous willingness to pay and fans all think that consumption is a continuous investment. This finding is supported by Huang, Q., & Zou, Y. (2025), Kim, M. S., Wang, S., & Kim, S. (2023) and Yoo, S. C., Fan, H., Piscarac, D., & Puentes, S. T. (2025).

The final finding is that fan participation significantly moderates the relationship between growth visibility perception and emotional attachment. It shows that high engagement fans are easier to transform perceived growth visibility into emotional attachment, high engagement behaviors increase investment cost of time, money and energy, and high engagement fans are easier to have a sense of belonging. This finding is supported by customer engagement theory.

5.2. Research Insights

5.2.1. Theoretical Implications

The first theoretical implication is expanding parasocial interaction theory by proving growth visibility perception is an important causal variable for building parasocial interaction relationship. Past research mainly focused on idol attractiveness, the credibility of celebrities and social media interaction. This study found that growth visibility perception also can enhance fans emotional connection.

The second one is exploring customer engagement theory by finding that fan participation is not only engagement behaviors, but also a significant mechanism can enhance emotion. That explains that engagement is higher, then emotional attachment becomes stronger.

Third theoretical implication is expanding fans economy research by adding growth visibility perception and fan sense of accomplishment. It explains the behavior of continuous willingness to pay and provides the new theoretical explanation for generation Z fans' consumption behaviors.

5.2.2. Practical Implications

There are four managerial and practical implications from this study. The first one is that agency company should expose more content of idol growth by releasing training records, behind-the-scenes footage, growth diary and vlogs in social media. These exposures can let fans continue to perceive the growth process of idol.

Second one is that agency company can enhance fans emotional connection by increase live interaction, fans question and answer session and group operation. These can improve emotional attachment.

Third is to create fan sense of accomplishment by providing a supporter ranking list, fan level system and growth witnessing activity(such as public performance). These data and activities can let fans feel they are part of idol's success.

Fourth is that agency company should encourage fans to engage in every idol's activities, such as voting activity, community interaction and task mechanisms to enhance fan participation. That is because high engagement fans are easier to build emotional attachment and long-term willing to pay.

5.3. Research Limitations and Future Research Directions

First, the number of samples is 201 and the sample only receives from chinese social media platform. That may improve to expand sample numbers and compare from different countries in the future.

Second, this research only uses One-time questionnaire survey, which couldn't observe fans' psychology changing process and not enough evidence to prove long-term causal relationship. Future research needs to add longitudinal study and tracking study to see fans' behavior change.

Third, this study only has five variables. That needs to be improved by adding more variables and building a more complete model.

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