Analysis of Viewing Behavioral Intention towards Chinese Animation within the Context of the AIGC Animation Industry

Chaochu Xiang[1,*], Sili Jian[2], and Xinxin Liu[2]

[1] Visual Communication Design Department, Academy of Fine Arts and Design, Chengdu University, Chengdu, Sichuan, China
[2] Digital Media Design, Academy of Fine Arts and Design, Chengdu University, Chengdu, Sichuan, China
Email: xiangchaochu@cdu.edu.cn (C.X.); 1169623226@qq.com (S.J.); 1570859930@qq.com (X.L.)
*Corresponding author
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***Abstract*—This quantitative study investigated the Behavioral Intention (BI) of audiences to view Chinese animations within the context of the Artificial Intelligence (AI) Generated Content (AIGC) animation industry, alongside identifying the pivotal determinants exerting a significant influence upon it. The study assessed specific determinants, namely AI Based Screenwriting (ABS), AI Based Design Quality (ABDQ), Broadcast System (BS), Linkage System (LS), Social Influence (SI), and Attitude (ATT), to ascertain whether and in what manner they impacted the target audiences' behavioral intention. Quantitative surveys were administered to the target audience, and statistical analytical methods were employed to examine 498 valid responses. A stratified random sampling technique was adopted for this investigation. To assess the causal relationships among the factors considered, Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) were utilized. The statistical analysis revealed that all proposed hypotheses were supported, with Attitude (ATT) exerting the most substantial direct effect on behavioral intention. Every hypothesis was consequently validated, thereby fulfilling the research objectives. It is posited that these findings will offer valuable insights for the advancement of the Chinese animation industry in the era of AIGC.**

***Keywords*—Artificial Intelligence Generated Content (AIGC), Chinese animation, animation industry, behavioral intention**

I. Introduction

Currently, with the rapid advancement of Artificial Intelligence Generated Content (AIGC) technology has been reshaping content production paradigms across multiple cultural sectors with disruptive force. The animation industry, a field characterized by the deep integration of technology and art, is at the forefront of this transformative wave, undergoing profound and extensive changes [1]. AIGC technologies, including but not limited to diffusion models for image generation, large language models for scriptwriting, and AIGC-driven character motion and lip-sync automation, are increasingly integrated into the entire animation pipeline, from pre-production to post-production, which with unprecedented efficiency and automation. This transformation is not only reflected in reduced production costs and exponential gains in productivity but also in the deconstruction of conventional creative workflows, giving rise to a new paradigm of human–machine collaboration [2]. Moreover, it is enabling the rapid generation of massive volumes of stylistically diverse animated content, heralding the dawn of an era of democratized animation creation.

However, technological innovation constitutes merely one facet of this transformation. As animation works empowered by AIGC technology begin to saturate the market, a critical yet underexplored research domain emerges how audiences, as end consumers, perceive, evaluate, and ultimately accept this new genre of animated productions [3]. It remains unclear whether significant shifts will occur in viewing behaviors, aesthetic expectations, emotional engagement, and even value judgment criteria among viewers. Specifically, when confronted with animations known to be substantially co-created by AIGC, does viewership motivation stem from curiosity about novel technologies or from genuine appreciation for artistic merit? These research questions hold substantial scholarly significance.

At the theoretical level, this research will enrich and advance the application of the technology acceptance model within the creative and cultural industries, deepening our understanding of the audience's cognitive and acceptance mechanisms toward human-AIGC collaborative creative outputs. It offers new empirical cases and theoretical insights under the context of cutting-edge technology for fields such as media psychology and audience research. At the practical level, the research outcomes will provide critical data support and decision-making references for animation studios, streaming platforms, and content creators, enabling them to precisely gauge market trends, optimize the application strategy and content positioning of AIGC technologies, and thereby gain a competitive edge in a dynamic market environment. Furthermore, for industry policymakers and educators, understanding audience behavioral tendencies serves as a vital prerequisite for guiding the industry toward healthy and sustainable development, as well as for cultivating interdisciplinary talent equipped to meet future demands.

In quantitative research, audience viewing behavioral intention serves as a critical indicator for evaluating animation quality. Against the backdrop of the sweeping wave of AIGC technology transforming the animation industry, systematically analyzing the core changes confronting the sector and delving into audience preferences regarding AIGC-animated content not only constitutes a timely response to an emerging phenomenon but also represents an urgent and forward-looking research endeavor crucial for shaping the future trajectory of animation art and industrial ecosystem development. This empirical research aims to provide insights into the animation industry's transformation and upgrading in the intelligent era by examining target audiences' viewing behavioral intention toward Chinese animated works in the AIGC era.

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II. Literature Review

A. Theoretical Foundation

The researcher summarized the literature information about the entire latent variable of the conceptual framework for this quantitative research, which included AIGC Based Screenwriting, AIGC Based Design Quality, Broadcast system, Linkage System, Social Influence, Satisfaction, and Behavioral Intention.

AIGC Based Screenwriting is characterized as an animation screenwriting methodology which enhanced by Artificial Intelligence Generated content technology or system [4]. AIGC serves as a powerful assistive tool that liberates animation screenwriters from repetitive and formulaic intellectual tasks, allowing greater focus on core creative and emotional expression [5]. Moreover, Artificial Intelligence (AI)'s creative capabilities are built upon extensive training data, including vast quantities of scripts and literary works [6]. The output quality is closely linked to the richness and diversity of such data, underscoring the importance of avoiding content homogenization [7]. The ideal human-AI collaborative framework for AIGC-based screenwriting should remain human-centric, with animation screenwriters taking the lead [8]. This necessitates mastering effective interaction with AI through precise instructions to guide the generation of desired content [8]. AI-based animation design quality refers to the comprehensive standard of animated works produced through deep integration of artificial intelligence technologies across the entire animation creation workflow [9]. This quality benchmark encompasses artistic expression, technical proficiency, narrative impact, and production efficiency [10]. Rather than representing a singular technical metric, it constitutes a holistic concept for evaluating the integrated quality of animation works under the novel creative paradigm of human-AI collaboration [11].

Additionally, the Broadcasting System which at the level of content scheduling you referred to can be defined as: a strategic framework formulated by broadcasting institutions, such as TV stations and streaming platforms, which for planning and controlling the duration, pace, and sequence of animation series broadcasts [12]. Its core objective is to optimize the viewers' experience, maintain content popularity, and maximize commercial value [13]. The cross-media animation Linkage System can be defined as a strategic framework oriented around a core narrative or Intellectual Property (IP), which coordinates various media forms—including television animation, animated films, comics, novels, video games, and merchandise—creating deep collaboration and mutual reinforcement across content creation, market operations, and audience engagement. Its primary objective is to maximize the value and impact of the IP by constructing a self-sustaining and continuously expanding fan ecosystem [14].

Social influence refers to the extent to which individuals perceive that important others or social groups affect their decision to adopt the new technology or production [15]. It reflects how external social pressures shape one's behavioral intention to use such innovations [16]. Within the Unified Theory of Acceptance and Use of Technology (UTAUT) model, social influence functions as a direct determinant of behavioral intention rather than exerting an indirect effect [17]. This suggests that the opinions and attitudes of peers can directly facilitate or inhibit an individual's intention to engage with new technological solutions [18].

In the Technology Acceptance Model (TAM), attitude is a core concept that links users' cognitive evaluations of technology or specific products to their ultimate usage behavior [19]. This variable refers to the overall feelings and evaluations that individual users hold towards using a particular technological system, which can be either positive or negative [20]. Attitude is not static. By improving the design of the technological system or product to enhance its usefulness and ease of use, users' attitudes can be effectively changed [21].

In the field of behavioral science, behavioral intention serves as a pivotal concept that bridges an individual internal psychological processes and their subsequent overt actions [22]. It is regarded as the most significant predictor of actual behavior [23]. Within the framework of the Theory of Planned Behavior (TPB), behavioral intention functions as the immediate outcome of three key determinants—attitude toward the behavior, subjective norms, and perceived behavioral control—and directly influences behavioral enactment [24]. The strength of this intention can be operationalized through quantifiable measures, such as the likelihood of performing the behavior, thereby converting abstract constructs into empirically tractable variables. Generally, the more favorable an individual's attitude toward the behavior, the greater the perceived social support, and the stronger the sense of perceived control, the more pronounced the behavioral intention becomes [25].

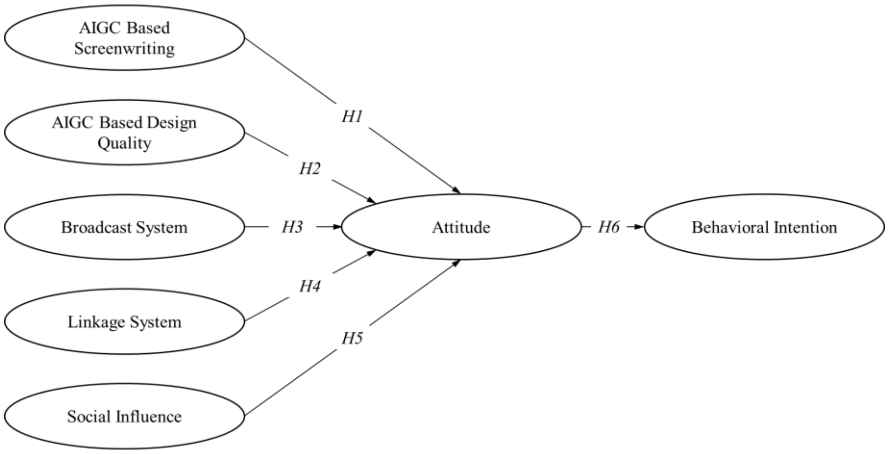

Fig. 1. Conceptual framework.

B. Conceptual Framework

In this empirical research which analyzed the target audiences' behavioral intention for the Chinese AIGC assisted animation, the conceptual framework was demonstrated in Fig. 1. Five independent variables which including AIGC Based Screenwriting (ABS), AIGC Based Design Quality (ABDQ), Broadcast System (BS), Linkage System (LS) and Social Influence (SI). One mediator variable is Attitude (ATT), and the dependent variable is Behavioral Intention (BI).

The structure and the hypotheses were illustrated in Fig. 1. The conceptual framework distinctly delineated the structural relationships between the key determinants and audience behavioral intention, thereby providing a definitive framework for the ensuing application of Confirmatory Factor Analysis (CFA), Structural Equation Modeling (SEM), and the formulation of practical strategies.

I. RESEARCH METHODOLOGY

A. The Evaluation of Research Instruments

The research instrument incorporated 37 observed variables distributed across seven latent constructs. Each observed variable was measured on a five-point Likert scale, with the target data gathered through a 1–5 equidistant scoring system.

After developing the scale items, the researchers performed an initial content validity verification by means of an Item Objective Congruence (IOC) analysis [26]. According to the IOC protocol, each observed variable necessitated evaluation by a minimum of three domain experts holding doctoral degrees, with an acceptable score threshold set at 0.5 [27]. To ensure methodological precision, four experts which all possessing doctoral qualifications and full professor titles, alongside over ten years of expertise in digital media quantitative research, participated in the assessment. The IOC outcomes exhibited content validity: 29 observed variables attained a score of 1.0, while 9 variables achieved a score of 0.8, with all results exceeding 0.5 points, thereby confirming the ideal content validity.

Table 1. Internal consistency reliability testing ($N = 30$)

Latent Variable	Scale Items No.	Cronbach's Alpha
AIGC Based Screenwriting	7	0.935
AIGC Based Design Quality	5	0.878
Broadcast System	5	0.941
Linkage System	5	0.917
Social Influence	5	0.952
Attitude	5	0.949
Behavioral Intention	5	0.882

Source: Demonstrated by the author.

Subsequent to the content validity verification, the researchers implemented the pilot evaluation which sampling 30 undergraduate students majoring in animation at Chengdu University to assess the internal consistency reliability of the research instrument. From this preliminary phase, 30 valid questionnaires were obtained. Analysis conducted with JAMOVI statistical software indicated that all constructions yielded Cronbach's Alpha (CA) coefficients above 0.7, signifying ideal internal consistency reliability of the measurement instrument [28]. These psychometric properties established the suitability of the instrument for subsequent large-scale data collection and statistical analysis. The detailed information was compiled in Table 1.

B. Research Methodology

The Structural Equation Model (SEM) constitutes a multivariate statistical evaluation technique extensively utilized in quantitative digital media exploration. It merges factor evaluation and path estimation to examine sophisticated interrelationships among the constructions. In contrast to regression analysis, SEM demands more rigorous data quality standards while also enabling more accurate quantification of indirect effects across multiple variables [29]. SEM is classified into two primary components: the measurement model and the structural model [30]. The measurement model, which corresponds to Confirmatory Factor Analysis (CFA), serves to verify the alignment between the research matrix and the obtained quantitative data, thereby rigorously evaluating the convergent and discriminant validity of the measurement scales [31]. Once data validity was established through CFA, the structural model was subsequently applied to evaluate the entire hypotheses and perform path analysis. Owing to its technical attributes, the SEM methodology exhibits considerable applicability to the specific research questions addressed in this study.

The Structural Equation Model (SEM) framework for this quantitative investigation was developed according to the research model. Its primary purpose was to analyze the interaction mechanisms involving five independent variables: AIGC Based Screenwriting, AIGC Based Design Quality, Broadcast System, Linkage System, and Social Influence; one mediator variable, Attitude; and one dependent variable behavioral intention. The model also examined the collective direct and indirect influences on the dependent variable behavioral intention. The quantitative data for this empirical research were gathered through an online questionnaire, with the interview conducted from October to November 2025. The survey population consisted of all undergraduate students majoring in animation at Chengdu University, Chengdu Academy of Fine Arts, and Southwest Minzu University, who served as the ideal target sample representing Chinese animation audiences. A total of 1,145 participants were selected through stratified random sampling, from which 498 valid responses were ultimately obtained.

In the data analysis phase, this investigation initially utilized JAMOVI to conduct descriptive analysis, whereby the means of the latent variables were compared to illuminate the evaluation status of the target students concerning AIGC learning satisfaction. Subsequently, CFA and SEM validation were performed using AMOS statistical software to delineate the interconnection mechanisms and influence efficacy among the construction. Eventually, the resulting model was subjected to rational interpretation, and scientifically grounded practical strategies were formulated accordingly.

II. RESULT AND DISCUSSION

A. Demographic Information

From the 498 valid questionnaires gathered in this research, the demographic distribution was detailed as follows: female students constituted 67.9% of respondents, with male students representing 32.1%. In relation to institutional affiliation, 41.6% of participants were from Chengdu University, 35.5% from Chengdu Academy of Fine Arts, and 22.9% from Southwest Minzu University. Concerning academic year composition, freshmen accounted for 24.8%, sophomores for 26.2%, juniors for 27.6%, and seniors for 21.4%. The sample exhibited a comparatively balanced and rational distribution across these demographic parameters, which substantiated the appropriateness of the quantitative data for subsequent statistical examination.

B. *Fundamental Validity and Reliability Evaluation*

The researcher performed a second-round internal consistency reliability test on the complete dataset with JAMOVI. Cronbach's Alpha coefficients for the constructions displayed a slight overall decrease; however, each value remained above 0.7, thereby confirming that the data maintained ideal internal consistency reliability. The detailed findings were compiled in Table 2.

Table 2. Internal consistency reliability testing ($N = 498$)

Latent Variable	Scale Items No.	Cronbach's Alpha
AIGC Based Screenwriting	7	0.893
AIGC Based Design Quality	5	0.883
Broadcast System	5	0.887
Linkage System	5	0.900
Social Influence	5	0.869
Attitude	5	0.899
Behavioral Intention	5	0.884

Source: Demonstrated by the author.

Furthermore, the KMO and Bartlett's sphericity tests, conducted using SPSS, produced a KMO value of 0.888 and a Bartlett's test significance level of 0.000, both meeting the required thresholds. Specific details are provided in Table 3. These outcomes indicate that the variables exhibited both satisfactory correlation and independence, thereby confirming the suitability of proceeding with subsequent factor analysis.

Table 3. KMO and bartlett's test of sphericity

Indicators for the Evaluation		Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.888
Bartlett's Test of Sphericity	Approx Chi-Square	10898.612
	DF	666
	Sig	0.000

Source: Demonstrated by the author.

C. *Confirmatory Factor Analysis*

In alignment with the previously outlined research design, the researcher utilized AMOS software to develop a CFA model and subsequently evaluated the congruence between the research matrix and the quantitative data.

The CFA assessment first necessitated the evaluation of the Goodness-of-Fit (GOF) between the data and the CFA or SEM model. This empirical study primarily examined seven GOF indices spanning two dimensions: absolute and incremental fit. With reference to the acceptable level for GOF proposed by Wynne *et al.* [32], a comprehensive goodness-of-fit test was conducted on the CFA. Detailed findings were provided in Table 4. After the initial CFA model was matched to the data, the fit indices for GFI and NFI were 0.888 and 0.897, respectively, which did not meet the standard; following adjustments to the CFA model, all fit indices subsequently aligned with an acceptable level of fit.

Table 4. Goodness-of-Fit for CFA

Index	Criterion	Before Adjusted	After Adjusted
CMIN/DF	< 3.000	1.898	1.489
GFI	≥ 0.900	0.888	0.914
AGFI	≥ 0.800	0.870	0.900
RMSEM	< 0.050	0.043	0.031
CFI	≥ 0.900	0.948	0.972
NFI	≥ 0.900	0.897	0.920
TLI	≥ 0.900	0.921	0.969

Source: Demonstrated by the author.

Subsequent to the GOF estimation, the core estimation criteria for CFA encompass convergent validity and discriminant validity. Convergent validity is jointly ascertained by factor loading, composite reliability, and average variance extracted. According to the thresholds established in Akyildiz's research findings, the following conditions should be satisfied in CFA convergent validity testing: factor loadings should be passed 0.5, composite reliability should be passed 0.7, average variance extracted should be passed 0.5, and all observed variables must demonstrate t-values above 1.98 and p-values below 0.05 [33].

The validation results indicated that all variables complied with these criteria: the minimum factor loading was 0.633, the lowest composite reliability was 0.859, and the lowest Average Variance Extracted (AVE) was 0.546. Moreover, the lowest t-value attained 13.086, with all p-values below 0.001. These metrics collectively verify that the quantitative data possess robust convergent validity with the research model. Detailed findings were provided in Table 5.

Following the criteria established in Brown's research, the evaluation of discriminant validity in CFA stipulates that the correlation coefficient between any two constructions must be less than the square root of their respective AVE values [34]. The results of the discriminant validity assessment for this research are presented in Table 6: the diagonal entries represent the square roots of the AVE for each construction, while the off-diagonal figures denote the correlation coefficients between the latent variables. The maximum observed correlation coefficient was 0.795, whereas the minimum square root of AVE was 0.741. All data points satisfied the established criterion, thereby demonstrating acceptable discriminant validity between the data and the model.

Table 5. Convergent validity evaluation for CFA

Latent Variable	Code	Factor Loading	S.E.	t-value	p-value	CR	AVE
AIGC Based Screenwriting	ABS1	0.692	–	–	–	0.893	0.546
	ABS2	0.667	0.068	13.759	***		
	ABS3	0.633	0.067	13.086	***		
	ABS4	0.833	0.073	16.853	***		
	ABS5	0.753	0.069	15.405	***		
	ABS6	0.839	0.069	16.947	***		
	ABS7	0.731	0.066	14.979	***		

AIGC Based Design Quality	ABDQ1	0.794	–	–	–	0.884	0.603
	ABDQ2	0.798	0.053	18.756	***		
	ABDQ3	0.758	0.052	17.654	***		
	ABDQ4	0.722	0.053	16.651	***		
	ABDQ5	0.808	0.050	19.027	***		
Broadcast System	BS1	0.787	–	–	–	0.888	0.613
	BS2	0.817	0.054	19.198	***		
	BS3	0.783	0.060	18.266	***		
	BS4	0.801	0.055	18.747	***		
	BS5	0.725	0.055	16.678	***		
Linkage System	LS1	0.853	–	–	–	0.895	0.632
	LS2	0.793	0.047	20.291	***		
	LS3	0.808	0.047	20.545	***		
	LS4	0.773	0.047	19.277	***		
	LS5	0.743	0.048	18.539	***		
Social Influence	SI1	0.744	–	–	–	0.859	0.549
	SI2	0.718	0.066	14.612	***		
	SI3	0.723	0.046	21.115	***		
	SI4	0.728	0.067	14.789	***		
	SI5	0.790	0.068	15.802	***		
Attitude	ATT1	0.740	–	–	–	0.893	0.626
	ATT2	0.834	0.061	17.868	***		
	ATT3	0.826	0.048	23.838	***		
	ATT4	0.799	0.062	17.160	***		
	ATT5	0.753	0.063	16.190	***		
Behavioral Intention	BI1	0.804	–	–	–	0.876	0.587
	BI2	0.786	0.057	17.948	***		
	BI3	0.686	0.055	14.766	***		
	BI4	0.740	0.058	15.333	***		
	BI5	0.806	0.058	16.756	***		

Note: *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$.
Source: Demonstrated by the author.

Table 6. Discriminant validity evaluation for CFA

Latent Variables	ABS	ABDQ	BS	LS	SI	ATT	BI
ABS	**0.739**						
ABDQ	0.150	**0.777**					
BS	0.327	0.155	**0.783**				
LS	0.217	0.184	0.196	**0.795**			
SI	0.191	0.069	0.196	0.218	**0.741**		
ATT	0.414	0.275	0.310	0.362	0.226	**0.791**	
BI	0.246	0.255	0.212	0.213	0.172	0.465	**0.766**

Source: Demonstrated by the author.

D. Structural Equation Model

Consistent with the procedure for Confirmatory Factor Analysis (CFA), Structural Equation Modeling (SEM) initially required a Goodness-of-Fit (GOF) estimation, with the evaluation criteria aligning with those specified for CFA [35]. Following verification, the initial SEM model fitted to the data produced a GFI of 0.870 and an NFI of 0.886, neither of which met the required standards. In a corresponding manner, after modifications were applied to the structural model of the SEM, all fit indices reached an acceptable level of fit. The detailed GOF information for the SEM is provided in Table 7.

Table 7. Goodness-of-Fit for SEM

Index	Criterion	Before Adjusted	After Adjusted
CMIN/DF	< 3.000	2.132	1.586
GFI	≥ 0.900	0.870	0.905
AGFI	≥ 0.800	0.854	0.892
RMSEM	< 0.050	0.048	0.034
CFI	≥ 0.900	0.933	0.966
NFI	≥ 0.900	0.881	0.913
TLI	≥ 0.900	0.928	0.963

Source: Demonstrated by the author.

All hypotheses proposed in this quantitative study were confirmed, as each exhibited a t-value exceeding 1.98 and a *p*-value below 0.05. Consequently, every hypothesis was supported. Among these, H1, H2, H3, H4, and H6 demonstrated significance at the 0.001 level, while H5 was significant at the 0.05 level. Detailed results are presented in Table 8.

Table 8. Hypotheses evaluation results

Hypothesis	Path			Standardized Path Coefficient (β)	S.E.	t-value	*p*-value	Test Results
H1	ATT	←	ABS	0.349	0.046	6.916	***	Supported
H2	ATT	←	ABDQ	0.214	0.038	4.572	***	Supported
H3	ATT	←	BS	0.156	0.038	3.391	***	Supported
H4	ATT	←	LS	0.262	0.038	5.536	***	Supported
H5	ATT	←	SI	0.110	0.042	2.336	*	Supported
H6	BI	←	ATT	0.521	0.064	9.475	***	Supported

Note: *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$.
Source: Demonstrated by the author.

Among the determinants, AIGC Based Screenwriting exerted the most substantial significant effect on Attitude, with a standardized path coefficient (β) of 0.349. Linkage System exhibited a positive and significant influence on Attitude, possessing a standardized path coefficient (β) of 0.262. AIGC Based Design Quality demonstrated the third-strongest significant impact on Attitude, with a standardized path coefficient (β) of 0.214. Broadcast System showed the fourth-strongest significant effect on Attitude, as indicated by a standardized path coefficient (β) of 0.156. Social Influence presented the fifth-strongest significant impact on Attitude, with a standardized path coefficient (β) of 0.110. Furthermore, Attitude produced a significant effect on Behavioral Intention, reflected in a standardized path coefficient (β) of 0.521, which represents the most substantial effect observed in this quantitative research.

In the path diagram analysis of this quantitative study, Attitude served as the mediator variable and Behavioral Intention as the dependent variable. The detailed outcomes of the path analysis are summarized in Table 9.

For the mediator variable Attitude, the R^2 value was 0.273, denoting that 27.3% of the variance in this mediator was accounted for by the aggregate direct influence of AIGC Based Screenwriting, AIGC Based Design Quality, Broadcast System, Linkage System, and Social Influence, with corresponding path coefficients of 0.349, 0.214, 0.156, 0.262, and 0.110.

Moreover, the R^2 value for Behavioral Intention was 0.272, signifying that 27.2% of the variance in this dependent variable was explained by the combined influence of all independent variables and the mediator variable. AIGC Based Screenwriting, AIGC Based Design Quality, Broadcast System, Linkage System, and Social Influence exerted an indirect significant influence, with path coefficients of 0.182, 0.112, 0.081, 0.136, and 0.057, respectively. In contrast, Attitude produced a direct influence on Behavioral Intention, reflected in a path coefficient of 0.521.

Table 9. The path diagram analysis

MV & DV	IV & DV						
	Effects	**SI**	**LS**	**BS**	**ABDQ**	**ABS**	**ATT**
ATT	Direct Effect	0.110	0.262	0.156	0.214	0.349	–
	Indirect Effect	–	–	–	–	–	–
	Total Effect	0.110	0.262	0.156	0.214	0.349	–
	R^2	0.273					
ATT	Direct Effect	–	–	–	–	–	0.521
	Indirect Effect	0.057	0.136	0.081	0.112	0.182	–
	Total Effect	0.057	0.136	0.081	0.112	0.182	0.521
	R^2	0.272					

Source: Demonstrated by the author.

V. Conclusion and Recommendation

A. Conclusion

The objective of this study was to elucidate how the behavioral intentions of the target audiences were significantly influenced within the context of the Chinese animation industry under the framework of AIGC. To validate the conceptual framework comprising AIGC Based Screenwriting, AIGC Based Design Quality, Broadcast System, Linkage System, Attitude, and Behavioral Intention, six hypotheses were formulated based on the conceptual model. Scale items were administered to 550 target audience members, of which 498 valid responses were collected. To conduct quantitative computations and evaluate the construct validity of the relationship between the data and the conceptual framework, a Confirmatory Factor Analysis (CFA) was successfully performed. Furthermore, Structural Equation Modeling (SEM) was employed to assess the primary influences affecting the variables associated with behavioral intention, and all proposed hypotheses were supported.

The results of hypothesis testing in this study indicated that five independent variables impacted Attitude, with AIGC Based Screenwriting exerting the strongest effect, followed by Linkage System, AIGC Based Design Quality, Broadcast System, and Social Influence. Additionally, Attitude exerted a direct effect on Behavioral Intention, representing the most substantial influence identified in this quantitative research.

B. Recommendation for Practice

Through the data of this study, and the verification results based on H1, In the context of AIGC technology empowering animation design and production, enhancing AI-based animation screenwriting requires establishing a "human-led, AI-assisted" collaborative paradigm. The application of AI tools in narrative innovation should be deepened. For instance, after inputting core themes, AI can leverage its capabilities in knowledge graphs and natural language processing to generate multiple plotlines and character relationship options. Screenwriters then select and refine these based on their humanistic literacy, which helps overcome creative bottlenecks while ensuring cultural depth and logical coherence. Addressing the shortcomings of AI-generated content in emotional expression and character arc development is crucial. This can be approached by fine-tuning models with datasets incorporating audience emotional feedback and introducing interactive narrative mechanisms. These allow AI to simulate audience expectations and dynamically optimize the emotional rhythm of plots and character development trajectories, thereby enhancing viewer immersion and resonance. Furthermore, encouraging deep integration between AI screenwriting and visual generation systems is vital. Utilizing text-to-video technology to translate script keywords into preliminary dynamic storyboards provides immediate audiovisual feedback, enabling synergistic adjustment of narrative tension and visual impact from the early creative stages. Ultimately, by establishing a human-centric, human-machine collaborative workflow, the efficiency advantages of AI can be transformed into narrative richness. This approach fundamentally enhances the artistic appeal of works and fosters greater audience acceptance.

Secondly, in terms of improving the AIGC based design quality, the issue of inconsistent character images in different shots generated by AI should be addressed by optimizing the control network and refining the prompt engineering, thereby enhancing the visual representation accuracy. At the same time, the application of AI in character action design and scene generation should be strengthened. By leveraging its predictive and optimization capabilities, the actions can be made more fluid and natural. Moreover, traditional artistic elements such as ink wash painting should be deeply integrated to break through the constraints of traditional creation and enhance the cultural connotation and artistic appeal of the works. The key lies in combining the efficiency advantage of AI with the original judgment of animators. The results generated by AI should be precisely controlled and artistically re-created by humans. In this way, while ensuring production efficiency, the narrative tension and emotional resonance of the works can be significantly enhanced, ultimately improving the audience's viewing attitude.

Furthermore, at the broadcast system level, playback strategies should be optimized through data-driven approaches to achieve personalized and interactive enhancements. Specifically, this entails constructing user profile analysis models to conduct multimodal analysis of audience aesthetic preferences and behavioral data, enabling precise content delivery and scheduling optimization. Concurrently, the integration of dynamic narrative engines allows viewers to influence branching plot developments via lightweight interactive choices, while leveraging AI to generate personalized trailers and commentary videos enhances viewing retention and social dissemination potential. Additionally, adopting AI-based dubbing platforms facilitates rapid generation of multilingual voice-overs and subtitles to accommodate global broadcasting needs. Coupled with sentiment analysis technology, real-time feedback can be utilized to adjust broadcasting pacing and content recommendation strategies, thereby systematically elevating audience attitude, immersion and emotional engagement.

Empowered by AIGC technology, to optimize the animation linkage system, the strategies require the establishment of an intelligent, IP-centered collaborative ecosystem. A unified IP digital asset library can be created using AIGC, and style transfer technology can be employed to ensure visual narrative consistency across platforms. A dynamic cross-media narrative engine should be developed to intelligently generate platform-specific content, such as Easter eggs and side stories, which based on user data, maintaining the IP's popularity. The key lies in forming a real-time closed loop between user feedback and creation: dynamically adjusting the emotional curve of collaborative content based on multi-platform sentiment analysis, and effectively adapting to overseas markets with intelligent localization tools. Through data-driven collaborative storytelling and emotional resonance, the audience's attitude of identification can be systematically enhanced.

Under the empowerment of AIGC technology, optimizing the social influence of Chinese animation requires adhering to a collaborative paradigm of "humanistic guidance and technological empowerment". The focus should be on modernizing the translation of traditional cultural elements through AIGC, and enhancing the audience's cultural identity and emotional resonance through immersive interactive design. At the same time, a data-driven mechanism based on real-time feedback should be established to dynamically optimize narrative expression, and positive values should be disseminated through multiple platforms. In addition, industry ethics and creative guidelines should be formulated to ensure that works not only improve production efficiency but also carry positive social values, thereby systematically improving the audience's acceptance and recognition of domestic animation.

When optimization strategies are effectively implemented across all independent variable dimensions, a significant positive impact on audience attitude or perceptions of Chinese animation is anticipated, thereby fostering proactive viewing behavioral intentions toward Chinese animated productions.

C. Limitation and the Further Research Direction

For the substantial proportion of Chinese animation audiences did not participate in this quantitative study, the demographic scope and sampling procedure were confined to undergraduate students majoring in animation at three public universities within Chengdu region of China. Additionally, other technology-focused quantitative theories were not incorporated, as the conceptual framework only encompassed three variables aligned with the TAM and UTAUT models.

Subsequent research could be developed along two avenues: extending the geographical scope of the study to include additional provinces in China, and, as part of refining the research framework, introducing supplementary variables derived from other quantitative theories such as ECM, TRA, TPB, and TAM for further examination.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Chaochu Xiang conducted the research; Sili Jian and Xinxin Liu analyzed the data; Chaochu Xiang wrote the paper; all authors had approved the final version.

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