



Construction of Emotional Visual Narrative in Digital Media Animation Based on Visual Communication Logic

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Abstract. With the rapid advancement of digital media technology, digital media animation has emerged as a vital carrier for emotional communication and cultural transmission, in which emotional expression directly determines communication efficiency and artistic value. To address prevalent issues in contemporary animation creation—including superficial emotional expression, fragmented narrative logic, and insufficient audience resonance—this study explores the construction pathways of emotional visual narrative in digital media animation from the perspective of visual communication logic. To strengthen the theoretical foundation, this study incorporates classic visual communication theories (e.g., visual image perception theory) and social semiotics (e.g., visual grammar theory), which emphasize the active construction of meaning by audiences through visual symbols and narrative structures. Adopting literature research, case analysis, and quantitative modeling, the paper clarifies the core connotations and internal relationships between visual communication logic and emotional visual narrative, extracts four key elements (visual symbol, color language, lens language, and interactive design), and establishes a quantitative evaluation model. A diagram of the interaction mechanism between visual communication logic and emotional narrative is constructed (see Figure 1), clearly defining emotional transformation nodes in the “encoding–transmission–decoding” process. Supported by typical cases such as *Deep Sea*, *Ne Zha: Birth of the Demon Child*, *Spirited Away*, and *Journey*, four feasible construction strategies are proposed. Findings indicate that designing emotional visual narrative in accordance with visual communication logic can significantly enhance animation’s emotional resonance and artistic appeal, thereby providing theoretical and practical support for the innovative development of digital media animation. This research aligns with the academic trend of integrating digital media and visual communication, possessing strong academic value and application prospects.

Keywords: Visual Communication Logic; Digital Media Animation; Emotional Visual Narrative; Visual Symbols; Construction Strategies

1 Introduction

During the last decade, there has been significant development in image aesthetics evaluation tasks using deep learning methods from handcrafted feature-based approaches to advanced neural network-based designs that can efficiently recognize sophisticated aesthetic patterns in images [1]. Attribute-based methods have improved aesthetic assessment tasks by dividing aesthetic assessment into discernible attributes such as composition and color harmony [2]. Personalized assessment techniques have also been studied for adapting personal aesthetic preferences in multi-task learning models [3]. The use of attention models has aided in the focused extraction of features based on aesthetically important regions of an image [4]. Personalized attribute modeling has also contributed towards understanding the complexity of aesthetic experience [5]. These research achievements in the field of aesthetic evaluation provide important theoretical support and technical reference for the emotional expression and aesthetic presentation of digital media animation, as well as a foundation for the subsequent exploration of animation emotional visual narrative construction. With the widespread popularization of digital platforms and the continuous upgrading of audience aesthetic demands, digital media animation has gradually become a core medium for cross-cultural communication and emotional exchange, and its emotional expression effect has become a key factor distinguishing high-quality works from ordinary ones. However, the lack of systematic guidance from visual communication logic often leads to the disconnection between visual expression and emotional connotation in animation creation, making it difficult for works to touch the audience's inner world and achieve the expected communication effect. Against this background, exploring the construction of emotional visual narrative from the perspective of visual communication logic has become an urgent need to promote the high-quality development of the digital media animation industry and meet the audience's growing aesthetic and emotional needs.

Driven by the aforementioned research on aesthetic evaluation, the digital era further promotes the in-depth integration of art and technology, making digital media animation a comprehensive art form with dual functions of information dissemination and emotional communication. Compared with traditional animation, digital media animation achieves more diverse visual expressions through digital production and communication, making emotional transmission more direct and efficient. However, many current animation works still have prominent problems in aesthetic presentation and emotional expression: superficial emotional expression, loose narrative structure, and disconnection between visual elements and emotional themes. These problems not only affect the aesthetic quality of works but also severely restrict the high-quality development of the animation industry.

To address the lack of theoretical depth in existing studies, this paper introduces classic visual communication theories and visual psychology as the theoretical basis. Specifically, visual image perception theory emphasizes that audience interpretation of visual symbols relies on prior experience and cultural context, while visual grammar theory (including narrative and conceptual structures) provides a systematic analytical framework for understanding how visual elements construct meaning and emo-

tion. These theories collectively underpin the “encoding–transmission–decoding” model of emotional visual narrative in digital media animation. Visual communication, with visual symbols as the core, follows the cognitive laws of the audience to achieve efficient information transmission, providing an important perspective for optimizing emotional narrative in animation. Visual communication logic emphasizes the rationality of visual coding, symbol transmission, and audience decoding, ensuring the accurate delivery of information and emotions. Emotional visual narrative transforms abstract emotions into visible images through the combination of narrative structure and visual language, thereby completing emotional and value expression.

Based on the above theoretical integration, this paper constructs an interaction mechanism between visual communication logic and emotional narrative (see Figure 1). In the encoding stage, creators select visual symbols, color language, and lens language according to the target emotion; in the transmission stage, digital media serves as the channel, during which visual elements may be intervened by interactive design; in the decoding stage, the audience reconstructs emotions through perception and cognition. The emotional transformation nodes are clearly defined as: (1) emotion-to-symbol mapping node (encoding), (2) symbol transmission interference node (transmission), and (3) symbol-to-emotion reconstruction node (decoding). These nodes determine the efficiency and accuracy of emotional communication.

At present, relevant studies mostly focus on a single direction such as animation emotional expression, and lack systematic discussion on the element system and construction path of emotional visual narrative from the perspective of visual communication logic. In view of this, this paper takes emotional visual narrative as the research object, explores its core elements, establishes a quantitative evaluation model, and proposes optimized construction strategies, aiming to improve the overall quality of digital media animation and enrich the cross-field theoretical system of visual communication and animation creation.

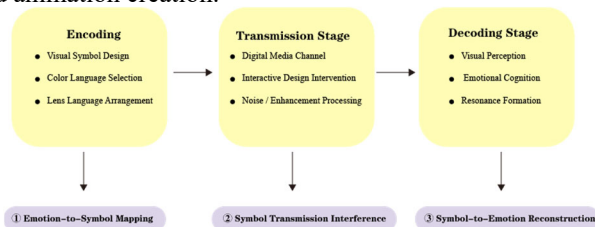


Fig. 1. Interaction mechanism between visual communication logic and emotional visual narrative (schematic diagram: from encoding to transmission to decoding with three emotional transformation nodes)

2 Theoretical Basis

2.1 Core Connotation of Visual Communication Logic

Visual communication logic refers to the inherent laws and design criteria followed in the process of visual information transmission, covering three core links: information

coding, symbol transmission, and audience decoding. Its core goal is to reasonably organize visual elements in line with human cognitive habits to achieve efficient and accurate transmission of information and emotions, with three characteristics: systematicness, pertinence, and expressiveness. Drawing on visual grammar theory, the coding stage involves the selection of narrative structures (e.g., action processes, reactional processes), while decoding relies on the audience's sociocultural background and perceptual habits. Visual image perception theory further emphasizes that visual perception is an active constructive process, which aligns with the pertinence characteristic of visual communication logic. In digital media animation, this logic directly guides the design of characters, scenes, colors, and lenses, requiring all visual languages to serve narrative and emotional expression, and ultimately achieve efficient emotional resonance with the audience.

2.2 Core Connotation of Emotional Visual Narrative

The emotional visual narrative of digital media animation is a narrative mode that constructs a complete story framework based on visual elements and conveys rich emotions such as joy, sorrow, and hope with the advancement of the plot. Its core is to carry emotions through vision and convey emotions through narrative, realizing the high unity of narrative logic and emotional expression. It has two prominent characteristics: visualization, which transforms invisible abstract emotions into intuitive visual symbols; and relevance, where emotional changes and plot development support each other and are inseparable.

2.3 Internal Relationship Between Visual Communication Logic and Emotional Visual Narrative

Visual communication logic and emotional visual narrative are interdependent and mutually promoting. On the one hand, visual communication logic provides solid theoretical and methodological support for emotional visual narrative, ensuring a rigorous narrative structure and clear and effective emotional transmission. On the other hand, emotional visual narrative expands the application boundary of visual communication, upgrading it from simple information transmission to high-level emotional communication and value resonance, and enhancing the artistic appeal and communication value of visual works. The emotional transformation nodes identified in the interaction mechanism (encoding, transmission, decoding) serve as the concrete interface between the two: the encoding node ensures logical fidelity, the transmission node maintains signal stability, and the decoding node guarantees emotional resonance.

3 Key Elements and Quantitative Model of Emotional Visual Narrative Construction

Guided by visual communication logic, the construction of emotional visual narrative relies on four core elements. To objectively evaluate the quality and effect of emotional visual narrative, this paper introduces a quantitative evaluation model combining qualitative and quantitative analysis. However, the model currently lacks empirical validation. To address this limitation, future work will include reliability and validity analysis based on audience survey data and comparative analysis with actual work scores from expert panels. The following model is thus proposed provisionally as a framework for subsequent empirical testing.

3.1 Visual Symbols: Core Carrier of Emotional Transmission

Visual symbols (including character modeling, scene space, props, etc.) are the most basic units of emotional communication in animation, carrying fixed and clear emotional implications. For example, soft and rounded lines convey warmth and comfort, while sharp and angular lines imply tension and conflict. In the CG animation of *Elden Ring*, the corrupted lake composed of turbid tones and scarlet fog directly creates a strong atmosphere of despair, realizing efficient emotional output through visual symbols.

3.2 Color Language: Key Means of Emotional Rendering

Color is the visual element with the most direct emotional impact. Warm colors usually express enthusiasm, joy, and positive emotions, cold colors convey calmness, sadness, and depression, and neutral colors create a solemn and peaceful atmosphere. Digital media technology supports precise color adjustment and matching, which can flexibly change color tones with the fluctuation of the plot and emotions, strengthening the emotional rendering effect of animation.

3.3 Lens Language: Bridge Connecting Narrative and Emotion

Lens language guides and shapes audience emotions through lens scale, movement mode, and montage editing. Close-up shots can magnify subtle expressions and highlight inner changes; panoramic shots enhance the immersive experience; montage expresses complex and hierarchical emotions by splicing different images. Digital editing technology can accurately match lens rhythm with emotional changes, improving the narrative tension or lyricism of animation.

3.4 Interactive Design: Important Path to Enhance Emotional Resonance

The interactivity of digital media breaks the traditional one-way viewing mode. Simple interactive design can realize plot selection and trend control, while VR/AR im-

mersive interaction can greatly enhance the audience's sense of substitution. Projects such as the Digital Lotus Installation of Xiangtangshan Grottoes and Yellow Liang Yi Meng in Handan Fangte have enhanced the depth and durability of emotional experience through interactive design.

3.5 Quantitative Evaluation Model of Emotional Visual Narrative

This paper constructs a multi-factor weighted evaluation model:

$$E_N = \omega_1 S + \omega_2 C + \omega_3 L + \omega_4 I$$

where E_N is the comprehensive score of emotional narrative, S , C , L , and I represent the scores of visual symbols, color language, lens language, and interactive design respectively, and $\omega_1 - \omega_4$ are weight coefficients with a sum of 1.

The formula for calculating the matching degree of visual communication logic is:

$$M = \frac{R}{T} \times 100$$

where M is the matching degree, R is the number of effective visual elements, and T is the total number of visual elements.

The audience emotional resonance intensity model is:

$$R_e = \alpha \cdot E_N + \beta \cdot M$$

where R_e is the resonance intensity, and α and β are influence coefficients with a sum of 1. This series of models provides a quantifiable tool for the evaluation and optimization of emotional visual narrative.

Model Validation Note: Currently, the model has not undergone reliability and validity analysis. In future research, we plan to collect audience evaluation scores for sample animation clips (e.g., 30-second excerpts from *Deep Sea* and *Spirited Away*), conduct Cronbach's α reliability test and factor analysis for validity, and compare model-calculated E_N and R_e with actual expert and audience scores using paired t-tests to verify the model's predictive accuracy.

4 Construction Strategies of Emotional Visual Narrative

Combined with visual communication logic and animation creation practice, based on the above quantitative model, this paper proposes four operable construction strategies.

4.1 Clarify the Emotional Theme and Unify Narrative Logic

The emotional theme should run through the entire animation and be consistent with the cognitive needs of the target audience. Creators need to sort out a clear narrative thread to avoid disconnection between narrative and emotion. The matching degree M can be used to optimize visual elements, ensuring that all visual languages serve the

core emotion. For example, *Deep Sea* takes "healing" as its core theme, adopts a particle ink wash style, and matches the changes of ink color and light and shadow with the emotional fluctuations of the characters, realizing the unity of visual language, narrative, and emotion.

4.2 Optimize Visual Symbols and Strengthen Emotional Symbolism

The design of visual symbols should closely focus on the theme emotion to enhance their emotional directivity and recognition. Improving the scoreS of visual symbols can strengthen the emotional carrying capacity of the entire symbol system. In *Ne Zha: Birth of the Demon Child*, *Ne Zha*'s rebellious modeling and the fire lotus prop accurately convey the emotional core of "defying fate", leaving a deep impression on the audience. To deepen the case analysis, a systematic coding of visual symbols in *Ne Zha* was conducted: (1) Character symbol: *Ne Zha*'s disheveled hair and dark eye circles encode rebellion and isolation; (2) Prop symbol: the red fire lotus ribbon represents protection and resistance; (3) Environmental symbol: the gloomy sky of *Chentang Pass* reinforces oppression. These symbols follow narrative structures of visual grammar, forming a coherent emotional chain from encoding to decoding.

4.3 Integrate Color and Lenses to Accurately Render the Atmosphere

The main color tone should be determined according to the emotional theme, and color changes should be used to reflect the ups and downs of emotions. At the same time, lens language should be combined to accurately guide audience emotions. For example, *Spirited Away* uses warm tones to show warm scenes, cold tones to express lonely emotions, and captures delicate emotional changes through close-up shots, triggering deep resonance from the audience. A systematic interpretation of lens language in *Spirited Away* reveals: (1) Close-up shots of *Chihiro*'s trembling hands encode fear and helplessness; (2) Long shots of the bathhouse encode alienation and the unknown; (3) Tracking shots following *Chihiro* running encode determination and growth. Montage editing of these lens units at the decoding node evokes the audience's empathetic response. Color coding further supports this: warm yellows in *Lin*'s room encode safety and trust, while cool blues in *Haku*'s dragon form encode mystery and sacrifice.

4.4 Strengthen Interactive Design and Improve Participatory Resonance

Lightweight and immersive interactive design should be added to transform the audience from passive viewers to active participants. Improving the interactive score I can significantly enhance the audience's sense of participation and emotional resonance. *Journey* achieves a gentle sense of companionship through minimal interaction, and strengthens the healing emotion with warm tones and wide shots, bringing a unique emotional experience.

In the creation process, E_N and R_e can be used to evaluate phased results, and the weight of each element can be dynamically adjusted to achieve the optimal effect of emotional visual narrative.

5 Conclusion and Future Work

Based on visual communication logic, this paper systematically studies the concept, elements, model, and strategies of emotional visual narrative in digital media animation. By integrating classic visual communication theories (visual image perception theory, visual grammar theory) and constructing an interaction mechanism diagram with clearly defined emotional transformation nodes in the encoding–transmission–decoding process, the theoretical foundation of the research is significantly strengthened. The research confirms that following the laws of visual communication can effectively solve the problems of superficial emotional expression and disjointed narrative in current animation, and significantly enhance emotional resonance and communication effect; the quantitative evaluation model makes the creation and evaluation process more scientific and standardized. Specifically, the four core elements (visual symbols, color language, lens language, and interactive design) extracted in this study form a complete emotional transmission system, which provides clear guidance for animation creators to integrate emotional expression into visual design, and the proposed construction strategies have strong operability and practical application value, which can directly serve the actual creation of digital media animation and help improve the overall quality of works in the industry.

This research also has certain limitations: the model has not yet undergone reliability and validity analysis, and there is a lack of quantitative comparison with actual work scores. The case analysis, while including systematic coding of visual symbols and lens language for *Ne Zha* and *Spirited Away*, remains limited in sample size and scope. The selected cases are mainly mainstream commercial animations, and the determination of model weights is mainly based on qualitative analysis. In the future, empirical studies such as questionnaires and eye-tracking experiments can be carried out to further improve the accuracy and objectivity of the model. At the same time, the research scope can be expanded to include independent animation and cross-cultural animation works, so as to enrich the research samples and make the research conclusions more universal and representative.

Future research can be deepened in two directions: first, integrate new technologies such as AIGC and VR/AR to explore intelligent and immersive emotional narrative paths; second, strengthen interdisciplinary research to improve the quantitative evaluation system of emotional visual narrative, including formal reliability analysis (Cronbach's α), validity analysis (confirmatory factor analysis), and comparative studies between model scores and expert/audience ratings. The research results can provide important theoretical reference and practical guidance for the creation, teaching, and industrial innovation of digital media animation. In addition, it is also necessary to pay attention to the changes in audience aesthetic needs in the digital era, continuously optimize the construction strategies of emotional visual narrative, and pro-

mote the sustainable and high-quality development of the digital media animation industry, so that animation works can better play the role of emotional communication and cultural inheritance.

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