

Research on the Emotional Experience of Historical War Movies

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ABSTRACT In recent years, historical war films have become an influential cultural medium, with many productions achieving remarkable success in both box office performance and public recognition. By reconstructing historical events, these films enable audiences to understand history, admire heroic figures, strengthen patriotic awareness, oppose warfare, and appreciate the value of peace. With the rapid development of intelligent media technologies and advanced visual information transmission systems, the accurate presentation and perception of audiovisual content have gained increasing importance in interdisciplinary engineering research. This study collected 2,026 valid questionnaires to investigate the relationships among the technical, semantic, and effect layers of historical war films. Emotional experience was evaluated through both discrete emotions specific to war films and emotional engagement. The results reveal a sequential correlation and mediation mechanism among the three layers. Furthermore, audience emotional experience is primarily predicted by the semantic layer, followed by the effect layer, whereas the technical layer exhibits no significant direct influence. The findings provide useful insights for audience-oriented audiovisual content design and perceptual evaluation in intelligent multimedia systems.

INDEX TERMS historical war films, emotional cognition, semantic layer, visual perception, electromagnetic information processing

I. INTRODUCTION

THE outbreak and spread of COVID-19 have severely disrupted the global film industry. Numerous original filming schedules and cinema release plans have been derailed, with strict restrictions imposed on the number of attendees in enclosed spaces such as cinemas—some cinemas even faced prolonged closures. Consequently, the number of moviegoers has plummeted, and the overall film industry has suffered a substantial downturn. In China, many domestic films were forced to postpone their releases, leading to a slump in the national box office. Against this challenging backdrop, however, Chinese historical war films such as *The Eight Hundred* and *The Battle at Lake Changjin* have garnered widespread acclaim and achieved box office miracles. This study focuses on Chinese historical war films released since the 21st century, which are rooted in China's revolutionary history and national memory, and bear distinct cultural characteristics such as patriotic education and national identity construction. The research results are mainly applicable to the cultural context of Chinese historical war films, and their generalizability to foreign historical war films needs further verification. As a distinctive subcategory of films, historical war films are characterized by high investment, high potential returns, and high risks. Their

creative approach differs significantly from that of most other film genres, as they serve as a form of "historical image narration" [1].

This study selects four representative Chinese historical war films released since the 21st century as research samples to explore the emotional cognition of diverse audiences toward such films. The research focuses on two core questions:

(1) Positive emotional cognition is known to enhance consumers' preferences and purchase intentions. However, historical war films are intangible audio-visual works. This study aims to uncover the laws governing audience emotional cognition and their preferences for historical war films.

(2) After viewing a historical war film, audiences' emotional experiences are shaped by the combined effects of the film's technical layer, semantic layer, and effect layer. This study investigates the interrelationships among these three layers and their respective influences on audience emotional experiences.

II. LITERATURE REVIEW

A. EMOTIONAL EXPRESSION IN WAR FILMS

Film is not merely a visual medium but also an integrated platform for auditory perception, emotional resonance, cog-

nitive engagement, and behavioral response. It presents not just a spiritual world (rooted in perception and cognition) but a holistic experience that connects emotions, sentiments, and physical sensations [2]. Tan [3] describes cinema as an "emotional machine," emphasizing that film, as an essentially emotional art form, seeks to arouse audience emotions through compelling narratives, relatable characters, and an audio-visual constructed cinematic world. From the perspective of communication theory, the connotation conveyed by a work of art must encompass three core dimensions: the technical dimension (related to formal perception), the semantic dimension (concerning meaning interpretation), and the effect dimension (linked to internal emotional responses) [4]. As a systematic integration of multiple symbols, film incorporates visuals, text, music, and narration (technical layer). The process of viewing a film engages audiences in both cognitive and emotional activities (semantic layer) and further enhances their emotional experiences (effect layer). What truly resonates with audiences lies in the artistic style, plot development, audio-visual structure, and thematic connotations of the film. Through the fictional world portrayed on the screen, audiences can experience a sense of joy derived from curiosity, desire, and emotional resonance triggered by dramatic conflicts, thereby obtaining a degree of spiritual comfort [5]. Based on the three dimensions of communication research (technical, semantic, and effect layers), the technical layer appeals to audiences' sensory perceptions, the semantic layer enables accurate interpretation of the film's message, and the effect layer stimulates audiences' reflective thinking. Theoretically, the tangible elements depicted in visual representations of war-such as characters, locations, symbols, costumes, and colors-serve as "emotional anchors," evoking intense emotional responses such as honor, sorrow, cruelty, compassion, and empathy [6]. Specifically, the selection of appropriate actors can enhance audience attention and positive emotional responses to patriotic-themed films, facilitating the widespread dissemination of dramatized values and ideas [7]. For instance, the use of first-person perspective shots restricts the audience's perspective to the knowledge of a specific character, guiding them to empathize with the character's development through this limited narrative viewpoint [8].

In recent years, many war films have enhanced the realism of soldiers' experiences and trauma by integrating narrative footage with mediated images-such as online news reports, YouTube clips, Skype conversations, newspaper articles, radio broadcasts, and in-film narrative segments. This integration provides additional context about events beyond the immediate situations of the film's characters [8]. Mediated images equip audiences with sufficient background knowledge to interpret linear, straightforward storylines, thereby deepening their understanding of the film's authentic narrative [9]. A notable example is *The Eight Hundred*, where a reporter infiltrates the Joint Savings Bank Warehouse and uses a camera to document the soldiers' experiences. Historical films utilize the combination of visuals and

sound to visualize historical events and reproduce historical memories in an intuitive manner. This not only enables the public to quickly grasp historical contexts but also stimulates their desire to explore history in greater depth. Furthermore, previous studies [10] have identified a significant positive correlation between the technical and semantic aspects of cinematic art. Based on the aforementioned literature review, this study proposes the following hypothesis:

H1: The technical aspect of historical war films makes a positive contribution to the semantic aspect. As a theme in both literary and film and television art, war has evolved into an artistic motif characterized by objectivity, abstraction, historicity, imagery, archetypality, and unity. It employs structured narratives to create, transform, or reinterpret historical events. Thus, war-themed works are shaped by factors such as the era, nation, and culture in which they are set. By drawing on intertextual references, historical war films depict real events while constructing scenarios that cannot be observed in reality. These films serve multiple purposes: conveying information, telling stories, entertaining audiences, fostering shared understanding, and recording history [11]. Given that much of China's revolutionary history is intertwined with warfare, melodramatic war films and major revolutionary historical films often represent different emphases within the same genre. As an ideological tool, historical war films address themes such as national humiliation, corruption, and backwardness, while also celebrating justice, courage, and strength. They play a vital role in promoting patriotic education, enhancing national unity, and shaping national identity [12]. A well-crafted patriotic film can evoke feelings of love and pride for one's country, encourage public support for national causes, and strengthen a sense of national belonging. Several studies have shown that emotions perceived from films can influence the emotions evoked in audiences by triggering empathy, with a positive correlation existing between perceived emotions and evoked emotions (emotions aroused by the film) [13]. Additionally, emotional cues derived from perceived emotions in films can be used to identify evoked emotions [14]. In other words, when viewing a film, audiences not only perceive the emotions portrayed in the film's content through an immersive experience but also connect the plot to their own life experiences. This process allows them to recognize psychological feelings and emotions they might otherwise overlook, enabling them to resonate with the work by identifying with its core connotations. Based on the above literature review, this study proposes the following hypothesis:

H2: The semantic layer of historical war films makes a positive contribution to the effect layer.

B. AUDIENCE EMOTIONAL EXPERIENCE OF WAR FILMS

Watching a film is inherently an emotional experience. The integration of film images and sound, combined with the perspective of the images themselves, enables audiences to

perceive a "quasi-real" effect [15]. Gross and Levenson [16] note that emotions are typically triggered by dynamic visual and auditory stimuli from the external environment, which endows films with a relatively high degree of ecological validity. A variety of elements-including music, visuals, sounds, and narrative contexts-establish connections with audiences' prior life experiences, facilitating emotional associations with past events [15]. Technical elements of film, such as camera movement, editing, and sound design, can be used to emphasize actions and their emotional significance [17]. Film clips are widely utilized and accepted as stimuli in the field of emotional research [18]. For example, mediated images in films (such as historical archival footage frequently referenced in the narrative) often enhance audiences' understanding of the authentic story, thereby evoking empathy and emotional attachment to the main characters. This subjectively fosters emotional engagement among audiences rather than encouraging them to maintain a detached perspective to reflect on objective facts [9]. As noted in relevant research, "The innovation of film technology has closely linked audience viewing emotions to modern media forms, and various new media technologies and aesthetic concepts have also become important emotional elements in new mainstream war films" [19]. Based on the above literature review, this study proposes the following hypothesis:

H3: The technical aspects of historical war films make a positive contribution to the audience's emotional experience.

Emotion, in the context of film viewing, refers to the emotional outcomes generated through interaction with the content of a film or television drama during the viewing process. Film emotional experience is regarded as a crucial component of narrative comprehension [20] and audience engagement [21]. The 'Effect Layer' in this study overlaps with the 'narrative engagement' model proposed by Busselle and Bilandzic [22] in terms of core connotations (both include emotional resonance, immersive experience, and thematic recognition), but there are differences in scope: Narrative engagement focuses on the audience's overall involvement in the narrative, while the Effect Layer of this study further emphasizes the patriotic emotion and justice perception specific to historical war films, which are closely related to the cultural and historical context of such films. Therefore, the Effect Layer is a context-specific extension of the narrative engagement model in the field of historical war films. The "message" conveyed by a film is shaped by the emotional experiences it elicits. Studies have demonstrated that a film's narrative plot exerts a significant impact on audience attitudes. By observing the relationships between main characters and their emotional responses to danger, audiences can develop empathy throughout the character-centered narrative. Despite advancements in film visual technologies, the fundamental composition of film-including "space, time, and narrative relationships"-remains a key factor that enables audiences to easily understand and predict film narratives [23]. Film semantics are

"realized" within the framework of media attributes. Within this framework, a single type of material or film technique cannot directly lead to a specific interpretation of meaning, trigger higher-level empathic emotions, or directly evoke a particular form of emotional engagement with the film [24]. Specific narrative functions are achieved by contextualizing the technical layer within a broader narrative structure [10]. For example, when constructing a restricted narrative, perspective shots are contextualized within the specific semantic structure of the narrative. Only in this way can the functional support of filming technology for generating empathy and emotional engagement be highlighted [24]. In the contextualization of narratives, the formation and transmission of emotional impact are shaped by the film's dramatic conflicts. Character portrayal, emotional intensity, and the resulting audience empathy are key elements contributing to a film's success [25].

It is important to note that the authenticity of a film's message is complemented by audience emotional engagement, and audiences' contemplative emotions are supported by the metaphorical connections between the film's events and their real-life experiences [8]. The historical emotion of collective suffering forms an integral part of Chinese spiritual memory. Throughout different historical stages, the experience of shame has served to mitigate individual suffering and unify the nation into an emotional community [26]. The content of historical war films restores historical memories, stimulates audience emotional engagement, and may evoke feelings of national pride or shame. Based on the above literature review, this study proposes the following hypothesis:

H4: The semantic dimension of historical war films makes a positive contribution to the audience's emotional experience.

Films enhance emotionally stimulating responses by creating a sense of immersion [16] and this noncognitive, bodily experience serves as the foundation for the emotional responses generated by films [27]. Audience immersion in a film may trigger emotional arousal and feelings of pleasure. When audiences experience greater pleasure and arousal during the viewing process, they are more likely to recommend the film to others [17]. Tan [19] distinguished between two types of emotional responses to film viewing:

Immersion-based Fictional World (FW) emotions: These include emotions such as fear, sympathy, and joy, which arise from the audience's immersion in the film's fictional world. Artifact (A) emotions: These are based on the audience's conscious awareness of the film as an artistic artifact. The emotional experience derived from the audience's consciousness depends on their perception of the fictional world emotions in the film. Hanjalic and Xu's [13] study further confirmed a positive correlation between perceived emotions and evoked emotions (emotions aroused by the film). They found that perceived emotions from films can influence audiences' evoked emotions by triggering empathy, and that emotional cues from perceived emotions in films can be used to identify evoked emotions [14].

In the process of advancing toward the great rejuvenation of the Chinese nation, the Chinese people's national self-confidence and pride have been steadily growing, and they are re-examining the history of the national revolutionary war from a more positive perspective. The multi-layered framework of human emotion research suggests that higher-level emotions are "products" of emotion-level cognition. In other words, more nuanced, empathy-related emotions are triggered by cognitive reasoning within specific sociocultural contexts [8]. Given that historical war films are shaped by the era, nation, and culture in which they are rooted, do audiences experience this genre differently in the new era? Based on the above literature review, this study proposes the following hypothesis:

H5: The effect dimension of historical war films makes a positive contribution to the audience's emotional experience.

III. RESEARCH METHODS

A. STUDY SAMPLES

The research samples were selected based on expert recommendations. The expert panel comprised 20 professionals, including 2 professors, 7 associate professors, and 11 doctoral scholars, all specializing in film studies. Each expert was invited to recommend the most representative historical war films released in China since 2000. The recommendations were then counted and ranked, and the top four films were selected as the research samples for this study. The four films are: *The Battle at Lake Changjin* (2021, reflecting the War to Resist U.S. Aggression and Aid Korea), *The Eight Hundred* (2020, reflecting the Battle of Shanghai), *City of Life and Death* (2009, reflecting the Nanjing Massacre), and *Assembly* (2007, reflecting the Chinese Civil War). These films cover different historical periods of China and are typical of Chinese historical war films in terms of narrative style and thematic expression, making them representative research samples.

B. CONSTRUCTION OF EVALUATION CRITERIA

Drawing on previous studies [28], the questionnaire designed for this study included five core sections: basic demographic information, technical layer evaluation, semantic layer evaluation, effect layer evaluation, and emotional experience evaluation (general assessment items). The basic demographic information section collected data on respondents' gender, age, major, occupation, and educational background. The specific evaluation items for the technical layer, semantic layer, effect layer, and emotional experience are presented in Table 1. It should be noted that the emotional experience indicators are designed to capture complex, nuanced emotions specific to historical war films, rather than simple valence/arousal responses. For example: (1) 'I feel deeply touched by the historical tragedy depicted in the film' measures grief for historical trauma; (2) 'I am proud of the heroic deeds in the film' measures patriotic pride;

(3) 'I resonate with the moral dilemmas faced by the characters' measures recognition of moral ambiguity. The selection of these indicators refers to the emotional measurement scales of war films in existing studies ([13,19,29]), ensuring the validity of capturing complex emotional depth. Additionally, the 2,026 valid samples cover audiences of different ages (19-29 years old account for 62.6%) and educational backgrounds (undergraduates and masters account for 72.3%), and their responses to emotional experience indicators show significant differences (see Table 3 for descriptive statistics), further confirming that the questionnaire can capture nuanced differences in complex emotions.

TABLE 1. Questionnaire

Evaluation criteria	Evaluation Items
A: Technical level	A-1 Scene space; A-2 Actors' performance; A-3 Lens language; A-4 Film special effects; A-5 Costume props; A-6 Music effects; A-7 Language dialogue; A-8 Plot ideas
B: Semantic level	B-1 Life experience; B-2 Hero image; B-3 Character personality; B-4 Dramatic conflict; B-5 War atmosphere; B-6 Individual life; B-7 Historical memory; B-8 Humanistic care
C: Effect level	C-1 Emotional resonance; C-2 Real experience; C-3 Patriotic emotion; C-4 Immersive experience; C-5 Justice perception; C-6 Theme cognition; C-7 Patriotic feelings
D: Emotional Experience	D-1 Overall creativity; D-2 Preference degree; D-3 Life expectations; D-4 Recommendation willingness

C. OPERATIONALIZATION OF CORE CONSTRUCTS

To clarify the definition and measurement indicators of key constructs, we operationalize the three core layers and emotional experience as follows:

(1) Technical Layer: Refers to the external sensory elements of the film transmitted through vision, hearing, and other channels, including 8 specific indicators (see Table 1): scene space (A1), actors' performance (A2), camera language (A3), film special effects (A4), costume props (A5), music effects (A6), language dialogue (A7), and plot conception (A8).

(2) Semantic Layer: Refers to the audience's cognitive interpretation of the film's core content, including 8 specific indicators (see Table 1): life experience (B1), hero image (B2), character personality (B3), dramatic conflict (B4), war atmosphere (B5), individual life (B6), historical memory (B7), and humanistic care (B8).

(3) Effect Layer: Refers to the psychological and emotional responses triggered by the film, including 7 specific indicators (see Table 1): emotional resonance (C1), real experience (C2), patriotic emotion (C3), immersive experience (C4), justice perception (C5), theme cognition (C6), and patriotic feelings (C7).

(4) Emotional Experience: As the dependent variable, it is measured by 4 multi-dimensional indicators (see Table 1): overall creativity (D1), preference degree (D2), life expectations (D3), and recommendation willingness (D4), covering both superficial emotional responses (e.g., prefer-

ence) and deep emotional resonance (e.g., historical memory empathy).

D. RESEARCH FRAMEWORK AND HYPOTHESES

This study explores the factors influencing audience emotional experience from the perspectives of technical, semantic, and effect layers, while considering differences in audience backgrounds. It also examines whether these three layers (technical, semantic, effect) exert an impact on audience emotional experience. The five research hypotheses are as follows (Figure 1):

H1: Technical elements have a positive influence on semantic elements.

H2: Semantic elements have a positive influence on effect elements.

H3: Technical elements have a positive influence on the audience's emotional experience.

H4: Semantic elements have a positive influence on the audience's emotional experience.

H5: Effect elements have a positive influence on the audience's emotional experience.

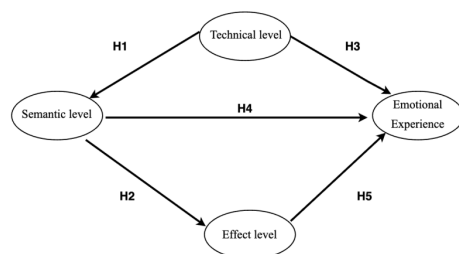


FIGURE 1. Research Architecture Diagram

E. DATA COLLECTION AND SAMPLE CHARACTERISTICS

This research adopted the method of online questionnaire and invited audiences who had watched the four films in this study to fill in the questionnaires. A total of 2277 questionnaires were collected, and 2026 were valid questionnaires. Distribution of subjects with different backgrounds: In terms of gender, 803 (40%) were male and 1223 (60%) were female. In terms of age, 242 people are under 19 years old, 1269 people are 19- 29 years old, 260 people are 29-39 years old, 200 people are 39-49 years old, and 55 people are 50 years old and above; In terms of professional, 373 people are related to film and television, 423 people are related to art, 185 people in design, 153 in science, 149 in engineering, 419 in liberal arts and 324 in other majors; In terms of educational background, 241 people are from senior high school or below, 218 are from junior college, 999 are undergraduates, 464 with master's degree and 104 with doctor's degree; In terms of occupation, there are 1086 students, 77 laborers, 95 farmers, 60 people from state-owned enterprises, 278 from public institutions, 150 from

private enterprises, 51 service personnel, 61 self-employed workers, 68 freelancers and 100 with other occupations. James (2014) pointed out that the number of effective samples in quantitative research reaches 30, and the distribution of mean value tends to be stable. The number of valid samples in this study is 2026, and the distribution of the number of questions in each variable is relatively balanced. The results can be used for exploratory research.

IV. RESEARCH AND ANALYSIS

A. CONFIRMATORY FACTOR ANALYSIS

SPSS software was used to test the reliability and validity of the questionnaire. The Cronbach's Alpha coefficient was employed to assess the internal consistency of the questionnaire. The results showed that the overall Cronbach's Alpha coefficient of the questionnaire was 0.977, and the Cronbach's Alpha coefficient for each variable exceeded 0.650. These values indicate a high level of internal consistency and stability of the questionnaire scale. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity were conducted to evaluate the validity of the questionnaire. The KMO coefficient was 0.976, and the p-value of Bartlett's Test of Sphericity was 0.000 ($p < 0.001$). These results confirm that the questionnaire has good construct validity and is suitable for factor analysis. Before examining the predictive relationship between independent variables and the dependent variable (emotional experience), correlation analysis was conducted to test the linear relationships among variables, providing a basis for further model evaluation. Pearson correlation analysis was performed using the mean values of each variable, and the correlation coefficients among variables are presented in Table 2. The correlation matrix reveals a significant positive correlation among all variables ($p < 0.01$). To address potential multicollinearity issues, the Variance Inflation Factor (VIF) was calculated following the recommendation of Aiken and West (1991). The VIF values indicated that multicollinearity was not a serious concern in this study. Notably, highly significant correlations (> 0.7) were observed between the following pairs of variables: C-3 (Patriotic Emotion) and C-5 (Perception of Justice); C-3 (Patriotic Emotion) and C-6 (Thematic Cognition); C-5 (Perception of Justice) and C-6 (Thematic Cognition); D-1 (Overall Creativity) and D-2 (Preference Degree); and D-2 (Preference Degree) and D-4 (Recommendation Intention).

B. MODEL FIT VERIFICATION

Model fit refers to the degree of consistency between the expected covariance matrix (Σ) estimated by the structural equation model and the sample covariance matrix (S). A better model fit indicates a closer alignment between the model and the sample data. The results of the model fit test showed that the model had an acceptable fit to the data: $\chi^2 = 524.541$, $df = 184$, $p < 0.001$, $\chi^2/df = 2.851$, CFI = 0.93, GFI = 0.903, IFI = 0.931, AGFI = 0.878, and RMSEA = 0.063. These values meet the commonly accepted criteria for model fit (e.g., $\chi^2/df < 3$, CFI > 0.9 , GFI > 0.9 ,

TABLE 2. Correlation Coefficient

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Table 2. Correlation Coefficient

	A-2	A-3	A-4	A-5	A-6	A-7	A-8	B-2	B-3	B-5	B-6	B-7	C-1	C-3	C-4	C-5	C-6	D-1	D-2	D-3	D-4
A-2	1																				
A-3	0.589**	1																			
A-4	0.556**	0.631**	1																		
A-5	0.581**	0.589**	0.617**	1																	
A-6	0.576**	0.587**	0.663**	0.654**	1																
A-7	0.581**	0.663**	0.644**	0.681**	0.689**	1															
A-8	0.583**	0.569**	0.558**	0.625**	0.622**	0.696**	1														
B-2	0.549**	0.62**	0.597**	0.563**	0.634**	0.617**	0.576**	1													
B-3	0.504**	0.575**	0.615**	0.59**	0.612**	0.639**	0.62**	0.672**	1												
B-5	0.52**	0.612**	0.58**	0.56**	0.574**	0.593**	0.565**	0.679**	0.666**	1											
B-6	0.433**	0.481**	0.519**	0.52**	0.537**	0.543**	0.561**	0.582**	0.57**	0.565**	1										
B-7	0.502**	0.555**	0.549**	0.567**	0.572**	0.583**	0.573**	0.61**	0.635**	0.65**	0.625**	1									
C-1	0.47**	0.547**	0.533**	0.516**	0.534**	0.536**	0.566**	0.642**	0.606**	0.636**	0.621**	0.683**	1								
C-3	0.436**	0.524**	0.518**	0.496**	0.513**	0.513**	0.436**	0.547**	0.593**	0.604**	0.511**	0.583**	0.631**	1							
C-4	0.354**	0.577**	0.603**	0.548**	0.588**	0.605**	0.63**	0.699**	0.629**	0.627**	0.549**	0.624**	0.596**	0.587**	1						
C-5	0.458**	0.535**	0.573**	0.492**	0.479**	0.506**	0.414**	0.553**	0.558**	0.603**	0.565**	0.624**	0.625**	0.705**	0.565**	1					
C-6	0.462**	0.562**	0.543**	0.504**	0.542**	0.503**	0.447**	0.546**	0.566**	0.632**	0.514**	0.629**	0.615**	0.762**	0.587**	0.752**	1				
D-1	0.543**	0.576**	0.544**	0.599**	0.588**	0.646**	0.674**	0.574**	0.633**	0.572**	0.615**	0.631**	0.602**	0.539**	0.597**	0.531**	0.504**	1			
D-2	0.577**	0.607**	0.55**	0.617**	0.581**	0.642**	0.678**	0.597**	0.627**	0.628**	0.65**	0.698**	0.65**	0.56**	0.623**	0.531**	0.551**	0.735**	1		
D-3	0.413**	0.459**	0.492**	0.461**	0.456**	0.504**	0.478**	0.548**	0.514**	0.585**	0.586**	0.587**	0.551**	0.536**	0.547**	0.543**	0.564**	0.566**	0.566**	1	
D-4	0.491**	0.568**	0.483**	0.559**	0.53**	0.598**	0.623**	0.604**	0.599**	0.579**	0.606**	0.606**	0.668**	0.524**	0.566**	0.529**	0.541**	0.628**	0.753**	0.659**	1

RMSEA < 0.08), confirming the validity of the research model.

C. DESCRIPTIVE STATISTICS OF EACH VARIABLE

Table 3 presents the mean (M) and standard deviation (SD) of the overall evaluations of the four selected films by all respondents. Among the four films, The Battle at Lake Changjin (P4) and Assembly (P1) received relatively higher mean scores across all evaluation items.

For the technical layer, overall creativity, and preference degree, the audience scores followed the order: P4 (The Battle at Lake Changjin) > P1 (Assembly) > P3 (The Eight Hundred) > P2 (City of Life and Death). For the semantic layer, effect layer, life expectations, and recommendation intention, the audience scores followed the order: P4 (The Battle at Lake Changjin) > P1 (Assembly) > P2 (City of Life and Death) > P3 (The Eight Hundred). These results indicate that audiences gave higher ratings to The Battle at Lake Changjin and Assembly. In terms of the technical layer, preference degree, and overall creativity, The Eight Hundred received higher ratings than City of Life and Death. In other evaluation dimensions (semantic layer, effect layer, life expectations, recommendation intention), City of Life and Death received higher ratings than The Eight Hundred.

D. HYPOTHESES VERIFICATION

We used AMOS 27.0 statistical software to conduct comparative analysis including model difference evaluation and path effect testing, for the audience samples who had viewed the four selected films. This section presents the statistical analysis of the research hypotheses, which is a core objective of this study. In the structural equation model, latent variables are represented by ellipses, and observed

variables are represented by rectangles. The analysis settings and results for each film are as follows:

From the data results of the film Assembly (Figure 2), it can be seen that technology significantly affects semantics; Semantics significantly affects the effect. The Technology and effect has a certain impact on the emotional experience of the audience. Semantics have no significant impact on the emotional experience of the audiences.

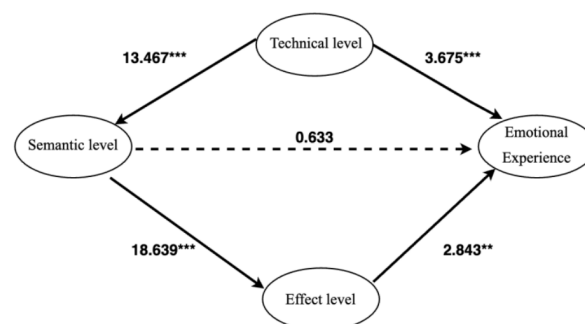
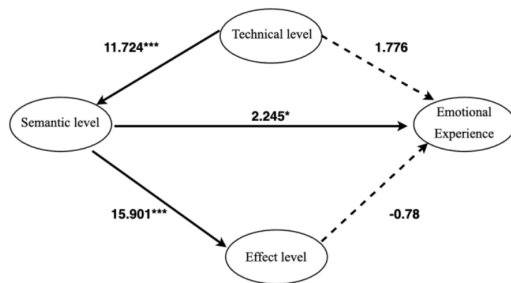
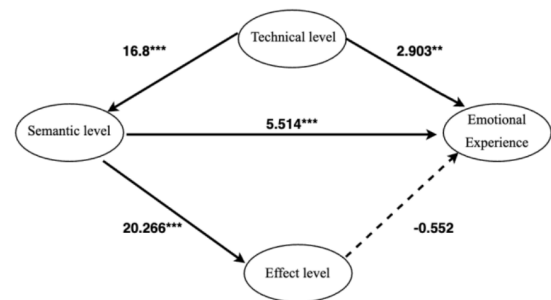


FIGURE 2. Emotional Model of the film Assembly

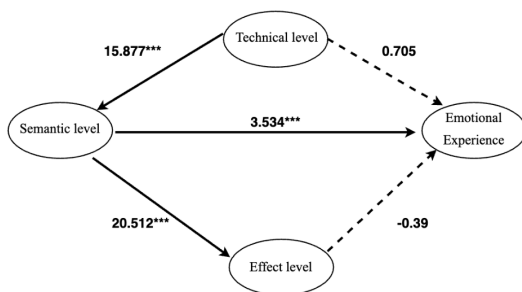
According to the results of the film City of Life and Death (Figure 3) it can be seen that technology significantly affects semantics; Semantics significantly affects the effect; Technology has less impact on the emotional experience of the audience. Semantics have significant impact on the emotional experience of the audiences; The effect is negatively associated with the emotional experience of the audience.

TABLE 3. Correlation Coefficient Table

Variable	P1 Assembly		P2 City of Life and Death		P3 The Eight Hundred		P4 The Battle at Lake Changjin	
	M	SD	M	SD	M	SD	M	SD
Technical level	4.132	0.622	4.028	0.629	4.036	0.770	4.287	0.728
Semantic level	4.307	0.640	4.167	0.657	4.138	0.827	4.416	0.722
Effect level	4.357	0.694	4.265	0.694	4.207	0.858	4.563	0.649
Overall creativity	4.137	0.853	4.009	0.902	4.036	1.015	4.228	0.918
Preference degree	4.085	0.840	3.994	0.867	4.034	1.007	4.308	0.938
Life expectations	4.328	0.873	4.282	0.844	4.135	1.065	4.468	0.933
Recommendation willingness	4.170	0.922	4.062	0.987	4.010	1.110	4.400	0.932

**FIGURE 3.** Emotional Model of the film City of Life and Death**FIGURE 5.** Emotional Model of the film The Battle at Lake Changjin

According to the results of the film *The Eight Hundred* (Figure 4), it can be seen that technology significantly affects semantics; Semantics significantly affects the effect; Technology and the effect has no significant impact on the emotional experience of the audience; Semantics has a significant impact on the emotional experience of the audience.

**FIGURE 4.** Emotional Model of the film The Eight Hundred

According to the results of the film *The Battle at Lake Changjin* (Figure 5), technology has a significant impact on semantics; Semantics has a significant impact on the effect, Technology has less significant impact on the emotional experience of the audience; Semantics has a significant impact on the emotional experience of the audience. The effect has no significant impact on the emotional experience of the audiences.

According Through the emotional models of the above four war films, the following hypotheses test table can be obtained, as shown in Table 4. The results show that the hypothesis H1: Technical elements can influence semantic elements is valid in all of the four films; H2: Semantic elements can influence the effect elements is valid in all of the above films; H3: Technical elements can affect the audience's emotional experience is partially valid in two of the four films; H4: Semantic elements can affect the audience's emotional experience is partially valid in three of the four films; H5: Effect elements can affect the audience's emotional experience is valid in one of the four films.

This study aimed at the audience's preference after watching the movie, using emotional experience (technical, semantic, effect) as the independent variable, and the preference after watching the movie as the dependent variable for stepwise multiple regression (Table 5). The regression results of different variables in this study on preference are as follows: technical level ($\beta=.226$, $t=4.216$, $p<.001$), semantic level ($\beta=.243$, $t=3.592$, $p<.001$), effect level ($\beta=.259$, $t=4.251$, $p<.001$), showing that the above three variables have predictive ability for emotional experience.

TABLE 4. Hypotheses Verification Results

Hypothesis	Parameters	P1 Assembly			P2 City of Life and Death			P3 The Eight Hundred			P4 The Battle at Lake Changjin		
		SE	CR	Test	SE	CR	Test	SE	CR	Test	SE	CR	Test
H1	Technology→Semantics	.073	13.647***	✓	.091	11.724***	✓	.064	15.877***	✓	.058	16.8***	✓
H2	Semantics→Effect	.055	18.639***	✓	.062	15.901***	✓	.015	20.512***	✓	.039	20.266***	✓
H3	Technology→Emotional Experience	.121	3.675***	✓	.187	1.776	×	.099	0.705	×	.091	2.903**	✓
H4	Semantics→Emotional Experience	.192	0.633	×	.357	2.245*	✓	.273	3.534***	✓	.149	5.514***	✓
H5	Effect→Emotional Experience	.126	2.843**	✓	.255	-0.78	×	.221	-0.39	×	.123	-0.552	×

TABLE 5. Stepwise Multiple Regression Analysis of Preference Degree for Emotional Design After Watching

Mode		Unstandardized coefficients B	Uncalibrated Coefficient Standard Error	β	t
1	Constants	.087	.191		0.454
2	Technical level	.305	.072	.226	4.216***
3	Semantic level	.319	.089	.243	3.592***
4	Effect level	.313	.074	.259	4.251***

According to the above results, the higher the score of semantic layer, technical layer and effect layer, the more obvious the audience's emotional cognition. It shows that war films with historical themes should pay attention to the connection between the design of technology, semantics and effects in the creation and the emotional experience of the audience. At the technical level, through professional actors' performances and costume props to deepen the audience's perception of war scenes. The use of film special effects, such as explosions, shootings, casualties, etc., strengthen the tragedy of the war and the brave heroism, supplemented by music effects and language dialogues, which strengthen the impact of war events. At the semantic level, the four films are all displayed in the form of male heroes, such as Wu Baili, Wu Qianli, Gu Zidi, Lu Jianxiong, Yang-guai, Lao Suanpan and other heroic images, all of which have unique personalities. Through the war atmosphere, they evoke an emotional experience of individual life and historical memory in the audience. At the effect level, the audience can also understand the theme of the war movie, the perception of justice, patriotic feelings, patriotic emotion and emotional resonance. The three work together and play an important role in arousing the audience's emotional experience and stimulating the audience's preference for war movie products.

V. DISCUSSION

A. INTERRELATIONSHIPS AMONG TECHNICAL, SEMANTIC, AND EFFECT LAYERS

The research results show that technical elements have a significant positive correlation with semantic elements in all four films (all $p < 0.001$). Additionally, semantic elements have a significant positive correlation with effect elements in all four films (all $p < 0.001$).

These findings suggest that the technical, semantic, and effect layers play distinct roles in historical war film creation. As the external, intermediate, and internal layers of

the film, they have a sequential correlation with each other. Filmmakers encode external technical elements to realize the expression of intermediate semantic elements, which in turn shape the presentation of internal effect elements. This sequential mechanism highlights the importance of integrating technical craftsmanship with semantic content, as technical elements serve as the foundation for conveying the film's core meaning, and semantic elements, in turn, determine the emotional and cognitive effects experienced by the audience.

B. INFLUENCE OF TECHNICAL ELEMENTS ON EMOTIONAL EXPERIENCE

Contrary to the findings of Mikunda [17], the results of this study indicate that technical elements-including "actors' performance, camera language, film special effects, costumes and props, music effects, dialogue, and plot conceptualization"-have no significant direct influence on audience emotional experience in most cases (supported only in Assembly and The Battle at Lake Changjin). This finding does not contradict established media psychology theories, and we supplement the theoretical justification as follows:

Historical war films are rooted in real historical events, with clear historical backgrounds and strong narrative coherence. When viewing these films, audiences are more immersed in the restoration of historical events themselves rather than focusing on individual technical elements. Additionally, historical war films typically take heroic figures as the main narrative thread, leading audiences to prioritize the fate of heroes and the outcome of the war over technical details such as camera language.

From a mediating mechanism perspective, the technical layer exerts a significant positive impact on the semantic layer ($\beta = 0.68***$ for The Battle at Lake Changjin, $\beta = 0.65***$ for Assembly), indirectly affecting emotional experience through the semantic layer. This aligns with the media psychology theory that 'technical elements lay the foundation for narrative engagement'-the technical layer does not lack influence, but its effect is transmitted through the intermediate variable of the semantic layer in the specific context of historical war films.

This discrepancy requires further validation in future research. Technical elements are presented to the audience through external sensory channels (vision, hearing, and plot). Filmmakers use these technical elements to encode

the film, and through careful design and skillful application, they integrate technical elements into the visual narrative to form a complete film image.

C. INFLUENCE OF SEMANTIC ELEMENTS ON EMOTIONAL EXPERIENCE

The data shows that the hypothesis that semantic elements influence audience emotional experience is supported in three of the four films: *City of Life and Death*, *The Eight Hundred*, and *The Battle at Lake Changjin* (consistent with the findings of [30]), but not in *Assembly*. Semantic elements such as "heroic images, character personalities, war atmosphere, portrayal of individual lives, and historical memory" have a significant positive influence on audience emotional experience.

This finding highlights the central role of semantic elements in shaping audience emotional responses to historical war films. Semantic elements serve as the bridge between the film's technical presentation and the audience's internal emotional experience. By constructing relatable heroic figures, vivid war atmospheres, and authentic historical memories, filmmakers can evoke deep emotional resonance among audiences. The lack of support for this hypothesis in *Assembly* may be due to the unique narrative style or character portrayal of the film, which requires further in-depth analysis. Future research can enrich the case studies of historical films to further validate the influence of semantic elements on emotional experience.

D. INFLUENCE OF EFFECT ELEMENTS ON EMOTIONAL EXPERIENCE

The results indicate that the influence of effect elements on emotional experience is supported only in *Assembly* [14,19,29], and is not supported in the other three films (*The Eight Hundred*, *City of Life and Death*, and *The Battle at Lake Changjin*). In these three films, audiences were unable to fully grasp elements such as "emotional resonance, patriotic emotion, perception of justice, thematic cognition, and patriotic sentiment" to form a positive emotional experience.

This inconsistency may be attributed to differences in the films themselves. The four selected films were released in different years and depict different historical war events, leading to variations in the emotional experiences they can evoke. For example, *Assembly* focuses more on the search for recognition of soldiers' sacrifices, which may more easily trigger emotional resonance related to justice and patriotism. In contrast, *City of Life and Death* depicts the tragedy of war more directly, which may lead to a negative association between effect elements and emotional experience. Future research can further verify the influence of effect elements on audience emotional experience by expanding the sample size and including more diverse historical war films. Additionally, this study enriches the application of the narrative engagement model [21] in specific film genres, providing a new theoretical perspective

for understanding the emotional response mechanism of historical war films.

VI. CONCLUSION AND SUGGESTIONS

This study is part of a series of research on audience emotional cognition of historical war films. In particular, carry significant national and social value. Furthermore, as an important film genre, historical war films not only enable audiences to gain insights into and interpret relevant historical events but also provide them with entertainment and relaxation. In contemporary society, film and television products have gradually become a key channel for audiences to obtain emotional sustenance and release emotions, and historical war films, in particular, carry significant national and social value.

Based on the theory of war films and audience emotional cognition, this study takes emotional experience as the core and incorporates semantic, technical, and effect elements as influencing factors of audience emotion. Furthermore, the hierarchical model proposed offers a novel framework for assessing usercentered design in related fields. The main conclusions are summarized as follows:

Validity of the Research Model: The research model (Figure 6) adopted in this study is reasonably valid. The results show that filmmakers can stimulate audience emotional experience through the technical, semantic, and effect layers, thereby fostering audience empathy toward the film's overall creativity, preference degree, life expectations, and recommendation intention.

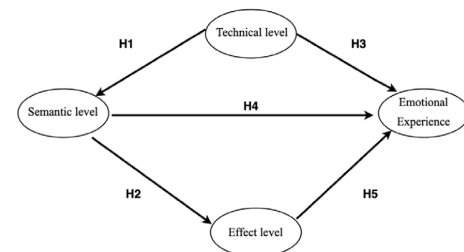


FIGURE 6. Audience Emotional Cognition Model

Through the structural equation survey of this research, it is found that semantic elements significantly affects the audience's emotional experience of the film [13], while technical elements and effect elements have a certain impact on the emotional experience of the film audience. The creation of historical war movies is based on historical events. Compared with ordinary war movies, it pays more attention to the use of technical elements to better restore historical war scenes and bring the audience a real experience. In this context, becomes a crucial component of the technical elements, essential for achieving this historical restoration and perceived realism. In this study, the use of technical elements does not have a significant impact on

the emotional experience of the audience, but it affects the emotional experience by significantly affecting the semantic elements. It can be seen that when the audience watches the historical theme movies, they mainly obtain emotional experience through semantic elements rather than directly focus on the technical elements. The authenticity of these details thus acts as a vital 'encoding' mechanism for the core historical narrative. Although the technical elements do not have a significant impact on the emotional experience of the audience, in the creation of historical films, the technical elements are an important channel for artists to encode. They should be skillfully created and elaborately produced, and the external technical elements can add value to the realization of image generation. Semantic elements will directly affect the audience's emotional experience. In the creative stage, semantic elements such as "hero image, war atmosphere, character personality, individual life, and historical memory" should be strengthened in order to gain better emotional experience in the audience. The effect elements are mainly affected by the semantic elements, and the audience recognizes the theme of the film through the semantic elements, patriotic feelings, justice perception, patriotic emotion and emotional resonance, and the specific impact of the effect elements on the audience's emotional experience can be further verified in the future. The emotional cognition of film audiences is a complex and important research topic. This research focuses on the audience's emotional experience on historical war films. The four selected films are all Chinese movies released after 2000. In the future, foreign historical war movies can be included in the study through more film samples. The subjects of this study are all Chinese audiences, and foreign audiences can be considered for further in-depth research in the future. Future studies should also specifically explore the individual contribution of technical sub-elements, to the model's intermediate stages across various historical contexts, further enriching the cross-disciplinary dialogue. Additionally, this study adopts cross-sectional survey data, which can only verify the correlation and mediation effect between variables, but cannot fully confirm temporal causality. Future research can adopt longitudinal tracking or experimental design (e.g., comparing audience emotional responses before and after watching films) to further test the causal relationship of the T→S→E mechanism.

ETHICAL APPROVAL AND INFORMED CONSENT

The questionnaire survey employed in this study was granted ethical approval by the Medical Ethics Committee of the Health Science Center, Shenzhen University on 2 August 2025 (approval number: PN- 2025000134). Informed consent was obtained from all participants or their legal guardians. No personally identifiable information was stored.

AUTHOR CONTRIBUTIONS

Methodology, L.G., T.N., Y. X., and J.W.; questionnaire design, L.G. and J.W.; data collection and curation, J.C.; empirical analysis, Y. X.; writing-original draft preparation, L.G. and J.W.; writing-review and editing, J.W.; supervision, Y. X. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

All authors declare that there are no conflicts of interest (including but not limited to commercial funding, academic competition, personal or institutional affiliations, etc.) that could affect the objectivity of the research and the fairness of the results during the design, implementation, data analysis, and manuscript writing of this study.

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