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A Study on the Core Elements and Narrative Strategies of Spatial Narratives in Cyberpunk Films — An Exploration Based on Grounded Theory

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ABSTRACT

Abstract: With the development of digital imaging technology and immersive media, spatial narratives in cyberpunk films have opened up new avenues for research on image-based storytelling and the construction of virtual space. This study applies grounded theory and utilizes MAXQDA 2022 to systematically analyze the key elements of spatial narratives in cyberpunk films, based on a sample of 188 diverse textual materials. Through this process, 91 codes, 42 concepts, 12 categories, and 4 main categories were extracted, leading to the construction and empirical validation of a theoretical model of spatial narrative. This paper proposes a spatial narrative strategy framework that integrates narrative functions with symbolic meanings, thereby expanding the theoretical perspective on spatial storytelling in cyberpunk cinema.

Keywords: Cyberpunk films; Spatial narrative; Grounded theory; Narrative strategy.

1. Introduction

Cyberpunk is a representative form of postmodern cultural expression, emphasizing the fusion of high-tech environments with socially alienated realities. Cyberpunk works typically depict “a landscape where technological development and urban alienation coexist” (Jameson, 2016). As a genre that blends high-tech fantasy with marginal social conditions, cyberpunk cinema diverges significantly from traditional film genres through its futuristic spatial constructions and strong ideological critiques. These films not only present multidimensional visual spaces，such as decaying cities, neon lights, and data flows that reflect societal anxiety and identity crises (Zhang & Jin, 2020)，but also serve as vehicles for cultural allegory and social critique. They construct a complex technology–human–space triadic relationship, revealing the subject–object split and spatial reconfiguration characteristic of postmodern society (Bukatman, 2020). With the proliferation of digital media, artificial intelligence, and immersive imaging technologies, spatial expression in cyberpunk cinema is becoming increasingly complex and diversified, particularly in terms of narrative strategy, visual mechanisms, and perceptual experience. These developments present new theoretical challenges and research imperatives.

In recent years, research on cyberpunk cinema by scholars both in China and abroad has primarily focused on two major directions. On the one hand, scholars have explored the cultural representational dimensions of

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cyberpunk—such as visual style, narrative motifs, technological imagery, and post-human themes. For example, Bukatman (2020) analyzes the tension between space, the body, and technology through the lens of "terminal subjectivity." On the other hand, scholars like Judith Butler (1990) have offered in-depth analyses of gender politics, identity alienation, and spatial governance, contributing to a deeper understanding of how cultural identity is constructed and how power operates within social space. On the other hand, scholars have also focused on the spatial visual presentation and media transformation driven by evolving image technologies. For instance, Manovich (2002) emphasizes that the architecture of digital images enables non-linear and reconfigurable spatial expressions. Similarly, Appadurai (1996) argues that mediated images detach spatial narratives from geographic foundations, facilitating the dissemination of "emotional landscapes" and enabling de-territorialized storytelling in the age of data visualization. Despite these theoretical insights, there remains a lack of empirical and integrative research that systematically uncovers the structural mechanisms and narrative strategies of spatial storytelling in cyberpunk cinema (Telotte, 2001). Although scholars have highlighted space as a social construct (Lefebvre, 1991), a mechanism for identity reorganization (Foucault & Miskowiec, 1986), and an active narrative agent (Soja, 1998). However, there is still a lack of a systematic analytical model of 'how space becomes a narrative driver' and 'how different spatial mechanisms contribute to plot and identity construction' in cyberpunk films.

Space in cyberpunk films is no longer just a background for the narrative, but also an important mechanism for driving narrative logic, shaping character perception, constructing emotional atmosphere, and manipulating audience perception. Such space often involves the superposition of real cities and virtual interfaces, the interplay between social marginality and technological control, and the juxtaposition of visual spectacle and political discourse, forming a highly anthropomorphic, fragmented, and sensory-driven narrative environment. Therefore, how to identify and refine the narrative elements of these spaces, and how to understand the logical relationship between 'space–narrative–cognition' in cyberpunk imagery has become a key issue in the study of genre films and the development of spatial narrative theory.

To sum up, this paper adopts the grounded theory approach, which has the advantage of bottom-up theory construction, to take the spatial narrative in cyberpunk films as the research object, and relies on diversified textual materials to summarise and refine the key elements and internal logical relations of its spatial narrative. On this basis, the core elements and structural relationships of cyberpunk film spatial narratives are constructed, and a theoretical model with explanatory power and practical applicability is further developed. The aim is to reveal how space functions as a narrative driving force, a mechanism for identity construction, and a device for perceptual control in cyberpunk films, with a view to enriching the theoretical research system of the genre, providing structured theoretical support for the expression of complex space in film and television narratives, promoting the systematic development of cyberpunk film research, and offering theoretical references and practical foundations for future studies on spatial narratives.

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2. Research Design

2.1 Research Methodology

As a rigorous qualitative research methodology, grounded theory emphasizes the use of solid empirical data as its foundation, the comprehensive application of analytical techniques such as logical reasoning, induction, deduction, and comparison, and a spiral research path to accurately distill core concepts and their deeper relationships from specific cases, thereby constructing a systematic and explanatory theoretical framework (Glaser & Strauss, 1967). This approach is not only highly dynamic and systematic, but also effectively reduces the subjective bias that may exist in traditional qualitative analysis through its continuous revision process, thus enhancing the objectivity, rationality, and scientific validity of the research conclusions.

At present, grounded theory has developed into three major schools: classical grounded theory, procedural grounded theory, and constructivist grounded theory. Despite differences in coding strategies among the three, they have all been widely applied in various types of social science research. In this study, we adopt procedural grounded theory (Strauss & Corbin, 1990), which provides a clearer and more rigorous operational specification and analytical process. We supplement this approach with MAXQDA 2022 software to systematically code spatial narrative texts in cyberpunk films at three levels, in order to extract the core elements and structural mechanisms of spatial narrative. We then explore the narrative functions and logical roles of space in identity construction, plot development, and visual presentation, ultimately constructing a theoretical model of spatial narrative in cyberpunk films. The coding process of grounded theory is shown in Figure 1.

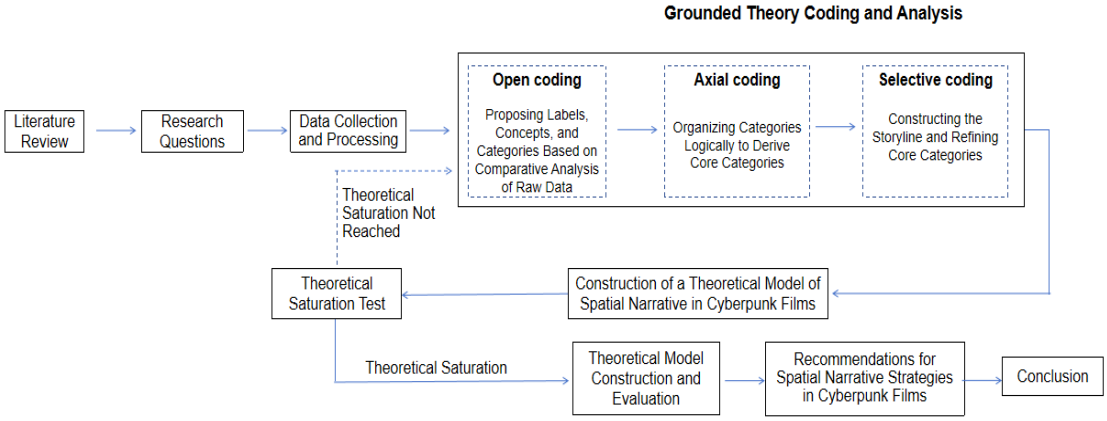

Figure 1. Research Process Diagram

2.2 Data Collection

The grounded theory approach places certain requirements on the richness and diversity of information. In view of the current lack of systematic research on the spatial narrative mechanisms and narrative strategies of cyberpunk films, this paper combines the characteristics of spatial narrative in film with representative research materials from the fields of visual culture, film narratology, spatial philosophy, and cyberpunk aesthetics, with the aim of exploring the key constituent elements of spatial narratives and their inherent logical relationships in

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cyberpunk films in depth.

The secondary sources used in this study mainly fall under the category of technical literature. According to Strauss and Corbin's (1990) definition, this category includes research reports, theoretical or philosophical essays, and other informational resources characterized by professional academic writing. Using academic papers and film texts as the primary data sources, this study explores the core elements of spatial narrative in cyberpunk films and the logic of their application based on a grounded theory approach. To ensure the systematicity, theoretical grounding, and practical value of the research, a dual search strategy of "literature collection + film screening" is adopted.

In terms of literature collection, the researcher combines the theoretical definitions and keyword framework of cyberpunk films developed in Chapter 2, and conducts systematic searches in core academic databases such as Google Scholar and CNKI. Keywords including "cyberpunk + narrative," "film space," "visual culture," "virtual space," and "future city" were used to retrieve relevant literature. To ensure the timeliness and relevance of the information, the Google Scholar search was limited to the period from 2020 to 2025. As a result, a total of 73 academic documents closely related to the research topic were obtained.

However, although academic literature can support theoretical construction, it remains limited in describing the practical dimensions of visual imagery. To address this, the study selected six highly representative cyberpunk films—covering both early classics and more recent innovative works—including *<Blade Runner> (1982), <Akira> (1988),< Ghost in the Shell >(1995), <The Matrix> (1999), <Blade Runner 2049> (2017), and <Alita: Battle Angel> (2019)*. During the process of literature retrieval and film analysis, a keyword combination strategy was adopted, such as precise searches using formats like "film title + narrative" or "film title + spatial narrative." A total of 211 academic documents were retrieved. Through vertical tracking and horizontal comparison of the spatial narrative mechanisms in these classic cyberpunk films, the core constituent elements and their dynamic evolutionary trends were systematically analyzed, aiming to provide a more structured analytical perspective and theoretical model for research on spatial narrative in cyberpunk films.

After multiple rounds of group screening and cross-validation, 188 data entries that were highly consistent with the research questions were ultimately selected as the analytical texts. Among them, 132 entries (70%) were used as core materials for open coding and axial coding, while the remaining 56 entries (30%) were reserved for theoretical saturation testing and comparative analysis, in order to ensure the systematicity, logical rigor, and interpretability of the theoretical construction.

3. Grounded Theory Analysis

3.1 Coding Process

3.1.1 Open Coding

Open coding is a systematic process of conceptualizing and categorizing raw data step by step—that is, the process of breaking down, naming, conceptualizing, and grouping similar concepts within the data (Fricker, 2021).

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Based on detailed analysis and continuous comparison of the data, this study extracted 167 valid original statements and assigned corresponding labels to each. Statements with similar or identical meanings were then grouped under the same concepts to achieve comprehensive conceptualization and categorization. Through this process, a total of 91 labels, 42 concepts, and 12 categories covering all records were identified. Due to space constraints, only part of the conceptual coding process is presented in this paper, as shown in Table 1.

Table 1. Examples of Open Coding (Partial)

Category (A)	Concept (aa)	Label (a)	Original Statement
A. Spatial Power Narrative	**aa1.** Stratified Spatial Structure	**a1.** Spatial Construction of Wealth Above and Poverty Below **a2.** Urban Segregation and the Formation of Class Dichotomy	"In cyberpunk films, the construction of urban space often adopts a vertical structure in which wealth resides above and poverty below. Specifically, this includes technologically advanced and prosperous megastructures towering in the upper levels, contrasted with overcrowded and dilapidated slum dwellings concentrated at the bottom" (a1)…
	aa2. Architectural Spatial Function	**a3.**Different Architectural Forms Construct Spatial Power **a4.** Narrative Space of Power, Status, and Identity	"These distinctive architectural structures further illustrate the construction mechanism of spatial power in cyberpunk films, highlighting the role of different buildings in the distribution and symbolism of power" (a3)…
	aa3. Disciplinary Mechanism Narrative	**a5.**Future Urban Space under Totalitarian and High-Tech Control **a6**. Oppositional Power Space	"In the urban context, power is materialized through architecture and technology as instruments of concrete control, shaping the spatial landscape of future cities under totalitarian and high-tech domination" (a5)…
B. Alienated Identity Narrative	**aa4.** Subject or Identity Reshaping	**a7.** Spatial Narrative Shaping the Subject **a8.** Alienation of Space and Human Nature	"Narrative not only defines the boundaries of character behavior but also implicitly constructs the subject's identity and psychological state. Space thus becomes a crucial narrative force in shaping the subject" (a7)…
	aa5. Identity Dilemma and	**a9.** Identity Deconstruction in	"As a field of internalized perception and emotional projection, psychological space

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	Fragmentation	Psychological Space **a10**. Identity Dilemma and Emotional Deficiency	leads the subject to gradually detach from their stable identity within physical space" (a9)...
	aa6. Spatial Expression and Perception of Identity	**a11.** Lifeforms of Computer Technology **a12.** The Cyborg's Disruption of Human Subject Stability	"In films, digital lifeforms often appear in the form of "computer-simulated life," achieving self-replication and expansion through network structures, thereby challenging traditional definitions of life" (a11)...
...	...	...	...
A total of 12 categories	A total of 42 concepts	A total of 91 labels	A total of 167 reference points

3.1.2 Axial Coding

Axial coding is a key phase in the grounded theory methodology, in which categories are reintegrated in a logical sequence to explore the implicit relationships among them. These relationships may include causal, semantic, contextual, and differential connections, thereby leading to the development of core categories (Strauss & Corbin, 1998). This study investigates the key elements and internal logic of spatial narrative in cyberpunk films. Based on the conceptual-level connections among different categories, four core categories are identified, as shown in Table 2.

Table 2. Axial Coding

Core Category (**AA**)	Category (**A**)	Category Meaning
AA1. Power Control	A1.Spatial Power Narrative	Through the film's architectural layout, geographic separation, and technological devices, power relations are visualised and structured in space narratively.
	A2. Alienated Identity Narrative Space	The sense of alienation and structural differentiation expresses the disconnection between the subject and their social role, bodily perception, and self-identity.
	A3. Dystopian Space Construction	The narrative emphasises depressing, dilapidated, and highly controlled spatial forms, presenting a critical imagination of totalitarian politics, technological alienation, or social disorder. The sense of alienation and

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		structural division expresses a rupture between the subject and their social role, physical perception, and self-identity.
AA2. Visual Simulacra	A4. Simulacral Shaping Narrative Field	The hyperreal space constructed through visual reproduction, virtual imagery, and simulation technology allows the image to replace reality as the primary source of the subject's experience.
	A5. Narrative Transformation of Visual Imagery	Through the dynamic changes of visual elements such as light and shadow, colour, and composition, the transformation of spatial narrative levels and emotional contexts is promoted.
	A6. Ruinized Narrative Space	Through the spatial construction of visual features such as abandonment, dilapidation, and decay, narrative themes of social disintegration, ecological crisis, and civilizational degradation are articulated.
AA3. Cultural Symbolism	A7. Conceptual Spatial Narrative Field	Space is employed as a medium for expressing ideas and interpreting concepts through abstract structures, philosophical metaphors, and representations of consciousness.
	A8. Subcultural Symbolic Narrative Field	Symbols, installations, and activities within specific spaces articulate the identity, cultural expression, and social resistance of marginalised groups.
	A9. Emotionalized Spatial Narrative	Centred on sensory experience, the characters' inner emotions and psychological tension are conveyed through the use of colour, light, sound, and spatial atmosphere.
AA4. Perceptual Reconstruction	A10. Nonlinear Spatial Narrative	The dislocation, fragmentation, and reorganisation of spatial structures break the traditional chronological order and causal logic, presenting a fragmented, multi-temporal juxtaposition within the narrative.

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	A11. Fragmented and Assembled Narrative Space	Multiple heterogeneous scenes, discontinuous structures, and stylistically hybrid spatial units are spliced together, presenting a narrative characterised by rupture, discontinuity, and non-uniformity.
	A12 Immersive Boundary Space	Spatial formations with blurred boundaries between the virtual and the real, the perceptual and the technological, enable the subject to experience a state of existence marked by ambiguity and high immersion, constituting a key site for the fusion of consciousness and space within the cyber-narrative.

3.1.3 Selective Coding

Selective coding identifies and refines the core category by constructing a "storyline" of the phenomenon, verifying its connections with other categories, establishing a typical relational structure, and gradually developing a theoretical framework (Yang Tong, Dang Yanzhong, et al., 2024). Through an in-depth analysis of the coded data, it is found that all categories derived from axial coding exhibit distinct characteristics, and the omission of any single category would compromise the integrity of the coding system. Ultimately, this study attributes all relevant phenomena to the core elements of spatial narratives in cyberpunk films, designating these as the core category. Based on this, the study further clarifies the typical relational structure between the core category and the main categories and their conceptual connotations, as illustrated in Table 3.

Table 3. Examples of Typical Relational Structures

Typical Relational Structure	Relational Structure Connotation
Visual Simulacra→Power Control→Perceptual Reconstruction	Visual mimesis employs digital imagery and hyperreal technologies to facilitate the embedding of power mechanisms within spatial narratives and to guide the construction of perceptual structures.
Cultural Symbolism→Power Control→Perceptual Reconstruction	Cultural symbols, as underlying motifs of spatial narratives, guide the unfolding of power control, which in turn facilitates the reconstruction of perceptual structures.

Based on the intrinsic connection between the core category and the main categories, the 'storyline' can be

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summarised as follows: In cyberpunk cinema, the generation of spatial narratives follows a progression from meaning to perception. Cultural symbols serve as the narrative's value-laden starting point, assigning identity and significance to space. Visual mimesis then transforms these cultural meanings into visual form, constructing spatial configurations with both aesthetic and political attributes. Power control is embedded within these mimetic spatial structures, shaping the spatial expression of social order through mechanisms of domination. Ultimately, perceptual reconstruction reorganises the narrative and character cognition through immersive experiences and non-linear spatial paths, achieving a fusion of narrative logic and subjective experience.

This process constitutes a dynamic, interactive, and complex system in which each main category plays an indispensable role. Drawing on analyses from open coding and axial coding, as well as the interpretation of the storyline, this paper clarifies the logical relationships between the core category and the main categories, as illustrated in Figure 2.

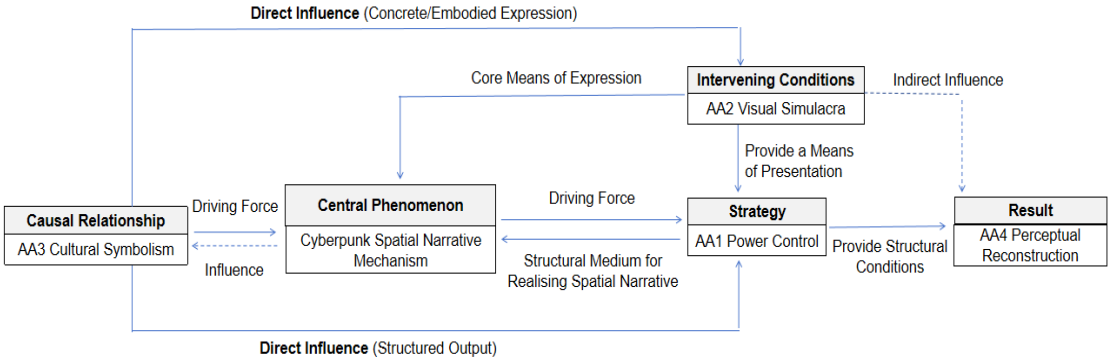

Figure 2. Logical Relationships Between the Core Category and the Main Categories

3.2 Results Analysis

3.2.1 Model Construction

Based on the above analysis and research, this paper constructs a theoretical model of the spatial narrative mechanism of cyberpunk film, as shown in Figure 3. The model covers four core elements: visual mimesis, power mechanism, perceptual structure and cultural symbols. Each element interacts and nests with each other through the paths of expression, empowerment and realisation, together constituting a dynamic narrative system of structure-perception-symbolism, which reveals the complex logic of the multi-dimensional mechanism operating in the cyberpunk image space.

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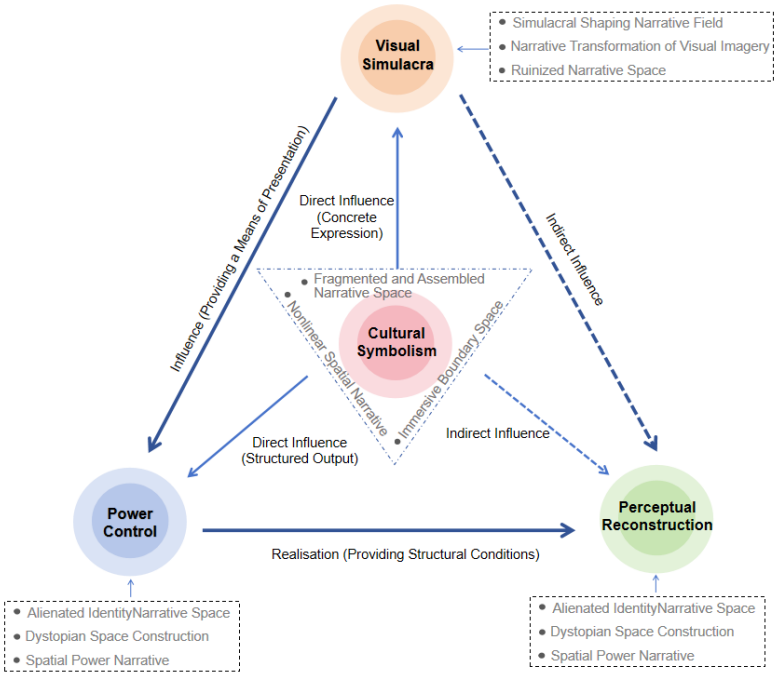

Figure 3. Theoretical Model of the Spatial Narrative Mechanism in Cyberpunk Films

1) Power Control. The level of power control covers spatial power narrative, alienated identity narrative space, and dystopian space construction, which are the key paths for the construction of repressive mechanisms in cyberpunk images. Firstly, the spatial power narrative highlights how power can be effectively controlled and symbolically reproduced in visual space through spatial layout forms such as closure, layering, and surveillance. Secondly, the alienated identity narrative space focuses on the individual's fragmented identity and the dissolution of subjectivity under technological alienation and systematic discipline, revealing how power deeply penetrates and reconstructs the individual's body and structure of consciousness. This reflects the dynamic process of disintegration and reconstitution of the sense of self in a technological environment, as described in *Terminal Identity* (Bukatman, 2020). Finally, the construction of dystopian space depicts the totalitarian nature of future society through grey, dilapidated, and depressing urban landscapes, reinforcing a critical narrative of power imbalance and technological tyranny in contemporary reality.

2）Visual Simulacra. The level of visual mimesis includes the mimesis narrative field, the narrative transformation of visual imagery, and the narrative space of the abolished scene. This dimension involves the deep manipulation of the symbolic image system and the reconstruction of the boundaries between visual truth and illusion. Firstly, the mimesis narrative field blurs the distinction between reality and fiction through highly programmed and replicated image forms, constructing the core visual grammar of mimetic space. Secondly, the narrative transformation of visual imagery emphasises the multiple functions assumed by images in the narrative, conveying emotions and cultural meanings through the dynamic translation of symbols, composition, and colour. This promotes the continuous transformation of narrative emotion and spatial meaning, reflecting the central role of imagery in constructing narrative space within the visual coding mechanism (Rose, 2001). Finally, by presenting

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scenes of decay, abandonment, and de-functionalisation, the ruined narrative space conveys a sense of emptiness and urban desolation in the cybercity, reinforcing the aesthetic fatigue and existential crisis of the mimetic world.

3）Cultural Symbolism. The level of cultural symbols includes the conceptual spatial narrative field, the symbolic narrative of the subcultural field, and the emotional spatial narrative. These serve as key carriers for constructing metaphorical meaning and socio-cultural identity within cinematic imagery.Firstly, the conceptual spatial narrative field transcends figurative representation and enters a symbolic narrative level through the spatial representation of philosophy, ideology, and visions of the future.Secondly, the symbolic narrative of the subcultural field focuses on the independent cultural contexts constructed by marginalised groups, including visual symbol systems such as slasher aesthetics, punk elements, and graffiti. These symbols carry the function of identity expression and social resistance. Finally, the emotional spatial narrative, grounded in film phenomenology, emphasises how images activate the viewer's bodily perception and emotional resonance through the nuanced use of light and shadow, temporal rhythm, and spatial texture. This process shapes collective emotions—such as repression, anxiety, and indifference—and enables the deep embedding of cultural experience within spatial perception (Sobchack, 1992).

4) Perceptual Reconstruction. Perceptual reconstruction consists of non-linear spatial narrative, fragmented narrative space, and immersive boundary space. Together, these elements form the foundation for recoding and mobilising audience perception within the cinematic experience. Firstly, non-linear spatial narrative, a core feature of "mind-game films" and similar genres, breaks the continuity of traditional time and space. It constructs multi-dimensional, interlaced, and overlapping fractured image structures, resulting in a spatial–temporal fragmentation. This narrative mode prompts a multi-focal unfolding of perception and requires viewers to engage in active, integrative perception during the viewing process (Elsaesser, 2009). Secondly, the fragmented narrative space creates a disjointed spatial structure through editing, splicing, and unstable points of view, encouraging the audience to participate in meaning-making amidst informational incompleteness. Finally, the immersive boundary space blurs the line between the real and the virtual through audiovisual technology, first-person perspective, and environmental rendering. This stimulates the audience's immersive perceptual experience and enables the spatial transformation of perceptual modes.

3.2.2 Theoretical Saturation Test

In the process of theoretical sampling, this study continuously compared, supplemented, and summarised the data until no new concepts or categories emerged, confirming that theoretical saturation had been reached. This ensured the validity of the constructed theory. To verify this, a combination of reserved primary data testing and expert review was adopted.

Firstly, 56 reserved textual materials were re-analysed through original statement extraction, open coding, and axial coding. The newly generated concepts were systematically compared with the existing categories. No new categories were identified, and the analogical relationships and logical structure among the main categories remained consistent.

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Secondly, the coding results and the theoretical model were submitted to two experts in relevant fields for evaluation. Positive feedback was received, and no substantial revisions were suggested regarding the structural relationships among the main categories.

In conclusion, the theoretical model of the spatial narrative mechanism in cyberpunk film can be considered to have reached theoretical saturation.

3.3 Model Construction and Measurement

3.3.1 Questionnaire Design and Sample Data Collection

As a theory-building method, the theoretical model developed through grounded theory requires empirical validation. To this end, this study employs a questionnaire-based approach to quantitatively assess the four core categories identified in the model—power control, visual simulacra, cultural symbolism, and perceptual reconstruction—in order to further test the scientific validity and applicability of the proposed framework.

The measurement items were designed in alignment with the research objectives, and a five-point Likert scale was used to evaluate participants' perceptions and judgments regarding the dimensions associated with each conceptual category.

During the questionnaire design stage, experts in relevant fields were first invited to review the content of the items. Questions that were ambiguous or potentially misleading were revised to produce a preliminary version of the questionnaire. Subsequently, 18 practitioners with extensive experience in film research, visual design, or cultural studies were randomly selected for pre-testing. Based on their feedback, the wording of certain items was fine-tuned to finalise the official version of the questionnaire. The final questionnaire was distributed electronically to film researchers, visual culture practitioners, and sci-fi/cyberpunk audience groups, in order to ensure the stability of model fit and path coefficients.

According to the recommendations of Hair et al. (2010) and Kline (2016), for structural models with medium or higher complexity, a sample size of no less than 300 is recommended to ensure the reliability and robustness of the analysis results. The number of questionnaires distributed should exceed the required number of valid responses, so 20% was added to account for invalid or missing responses, resulting in a total of 360 questionnaires distributed. After removing invalid questionnaires with highly consistent responses or excessively short completion times, a total of 306 valid questionnaires were obtained, with a valid response rate of 85%.

3.3.2 Demographic Description

This study conducted reliability analysis, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) to examine the internal consistency, structural validity, convergent validity, and discriminant validity of the initial scale measuring the spatial narrative mechanism of cyberpunk films.

First, EFA was conducted using SPSS 29.0 to assess the structural validity of the scale. The KMO value was 0.825, which is greater than 0.7, indicating a high level of correlation among the items. The Bartlett's test of sphericity yielded a statistic of 1622.916 with a p-value of 0.000, which is below the 5% significance level, indicating

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that the data are suitable for factor analysis. Using principal component analysis and varimax rotation with the criterion of eigenvalues greater than 1, four main factors were extracted from the scale. The cumulative variance contribution of these four factors reached 74.930%, which is greater than 60%, suggesting that little information was lost and the factor analysis results are reliable. All factor loadings were above 0.5, and no serious cross-loadings were observed; each item was clearly associated with its respective factor, indicating that the scale has good structural validity.

Table 4. Results of Exploratory Factor Analysis (EFA)

Research Constructs	Questionnaire Item	Component			
		1	2	3	4
Power Control	The spatial design in the film reflects the exercise of power control *(hereafter abbreviated as PC1).*	0.814			
	Technology and institutional systems blur and alienate characters' identities *(hereafter abbreviated as PC2).*	0.837			
	The film constructs a repressive atmosphere of a future society *(hereafter abbreviated as PC3).*	0.840			
Visual Simulacra	The visual effects in the film blur the boundary between reality and virtuality *(hereafter abbreviated as VS1).*				0.843
	Color and composition convey different emotions and senses of space across various scenes *(hereafter abbreviated as VS2).*				0.822
	Images of ruins and similar scenes reinforce the sense of disorder and nihilism *(hereafter abbreviated as VS3).*				0.800
Cultural Symbolism	Spatial design incorporates symbols of philosophy or ideology *(hereafter abbreviated as CS1).*		0.880		
	The film presents visual symbols of punk or subcultural elements *(hereafter abbreviated as CS2).*		0.820		
	Certain scenes create emotional atmospheres of anxiety, loneliness, and related feelings *(hereafter abbreviated as*		0.776		

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	CS3).				
Perceptual Reconstruction	The film often adopts a non-linear narrative structure that disrupts chronological order *(hereafter abbreviated as PR1).*			0.850	
	The spatial imagery appears fragmented, as it is composed of multiple disjointed visual segments *(hereafter abbreviated as PR2).*			0.803	
	Certain scenes evoke a strong sense of immersion, making the viewer feel as if they are physically present *(hereafter abbreviated as PR3).*			0.841	
	Rotation Sums of Squared Loadings	2.269	2.264	2.260	2.199
	% of Variance	18.907	18.866	18.835	18.322
	Cumulative %	18.907	37.772	56.608	74.930
	KMO			0.825	
	Bartlett's Test of Sphericity		Chi-Square	1622.916	
	Approx.		df	66	
			Sig.	<0.001	

Then, first-order and second-order confirmatory factor analyses (CFA) were conducted using AMOS 26.0 on the retained items to examine the convergent validity and discriminant validity of the scale. As shown in Table 5, the model fit indices are RMSEA = 0.028 and RMR = 0.022, both below the recommended threshold of 0.08. Additionally, GFI, CFI, IFI, and TLI all exceed 0.90, indicating good model fit. Overall, the results demonstrate that the scale has a high level of model-data fit.

Table 5. Model Fit Test Results for the Structural Model

Model Fit Indices	Model Fit Criteria	Model Results	Model Fit Evaluation
CMIN/DF	1-3	1.242	Fit
RMSEA	<0.08	0.028	Fit
RMR	<0.08	0.022	Fit
GFI	>0.90	0.969	Fit
CFI	>0.90	0.992	Fit
IFI	>0.90	0.992	Fit
TLI	>0.90	0.990	Fit

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All standardized factor loadings exceed 0.5, the composite reliability (CR) values are above 0.7, and the average variance extracted (AVE) values are all greater than 0.5, indicating that the scale meets the acceptable standards for convergent validity.

Table 6. Questionnaire Design and Measurement Evaluation Results

Research Constructs	Questionnaire Item	Factor Loading (CFA)	Cronbach's α	CR	AVE
Power Control	*PC1*	0.724	0.831	0.832	0.624
	PC2	0.801		0.817	0.600
	PC3	0.841		0.843	0.642
Visual Simulacra	*VS1*	0.852	0.813	0.832	0.623
	VS2	0.698		0.832	0.624
	VS3	0.767		0.817	0.600
Cultural Symbolism	*CS1*	0.859	0.839	0.843	0.642
	CS2	0.778		0.832	0.623
	CS3	0.764		0.832	0.624
Perceptual Reconstruction	*PR1*	0.776	0.830	0.817	0.600
	PR2	0.760		0.843	0.642
	PR3	0.830		0.832	0.623
X^2/df=1.242 RMSEA=0.028,GFI=0.969,AGFI=0.950,TLI=0.990,IFI=0.992,NFI=0.963					

Table 7 presents the discriminant validity results. The correlation coefficients between the latent variables are all lower than the square roots of the corresponding AVE values on the diagonal, indicating that the variables have good discriminant validity.

Table 7. Discriminant Validity Analysis

	Power Control	Visual Simulacra	Cultural Symbolism	Perceptual Reconstruction
Power Control	**0.790**			
Visual Simulacra	0.410	**0.775**		
Cultural Symbolism	0.469	0.457	**0.801**	
Perceptual Reconstruction	0.401	0.390	0.447	**0.789**

(*Note: Bold values on the diagonal represent the square roots of the AVE; values below the diagonal indicate the correlation coefficients between latent variables.)

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3.3.4 Model Evaluation

To verify the rationality of the theoretical model of spatial narrative in cyberpunk films, this study conducted a model fit analysis using AMOS 26.0. The results are shown in Figure 4. As illustrated in Figure 4, all standardised path coefficients of the evaluation indicators are greater than 0.5, indicating a good model fit and supporting the validity of the dimensional structure of the proposed theoretical model. In addition, the standardised path coefficients and weight rankings of the first-order constructs are, in descending order: cultural symbolism, power control, visual simulacra, and perceptual reconstruction, suggesting that cultural symbolism has the greatest impact on the spatial narrative mechanism in cyberpunk films.

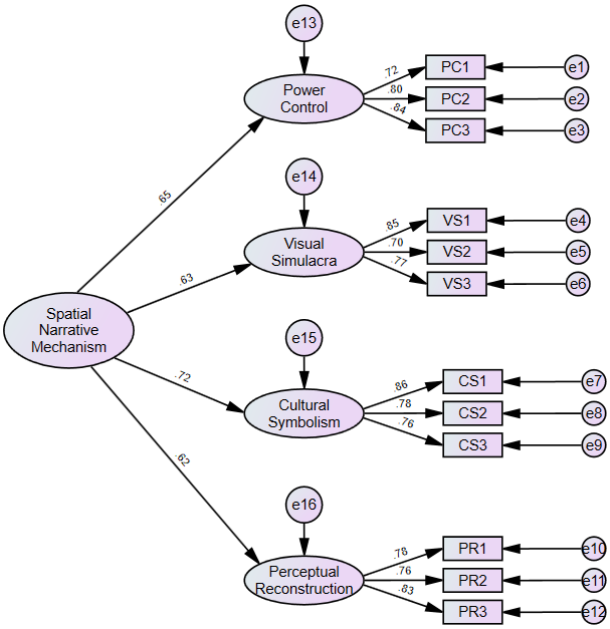

Figure 4. Measurement Results of the Construct Model for Spatial Narrative in Cyberpunk Films

4. Suggestions for Spatial Narrative Strategies in Cyberpunk Films

Based on the above analysis, the construction of spatial narrative mechanisms in cyberpunk films represents an organic integration of functional structure, perceptual experience, visual representation, and cultural value. Accordingly, this paper proposes a spatial narrative strategy system grounded in the integration of narrative function and symbolic meaning, as shown in Figure 5.

At the functional level, emphasis is placed on the presentation of spatial power structures and the construction of dystopian order. At the experiential level, the focus is on how nonlinear structures and fragmented layouts guide the audience's perceptual pathways, enhancing narrative engagement and immersion. At the representational level, attention is given to the construction of simulacra visual systems and the organization of ruin imagery. At the value level, cultural symbol embedding and emotional modulation are used to reinforce the ideological references and critical social potential of space.

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The synergy of these four levels not only enhances the systematicity and layering of spatial narrative but also deepens the audience's emotional resonance and cultural understanding, further promoting the aesthetic innovation and contemporary expression of cyberpunk cinematic language.

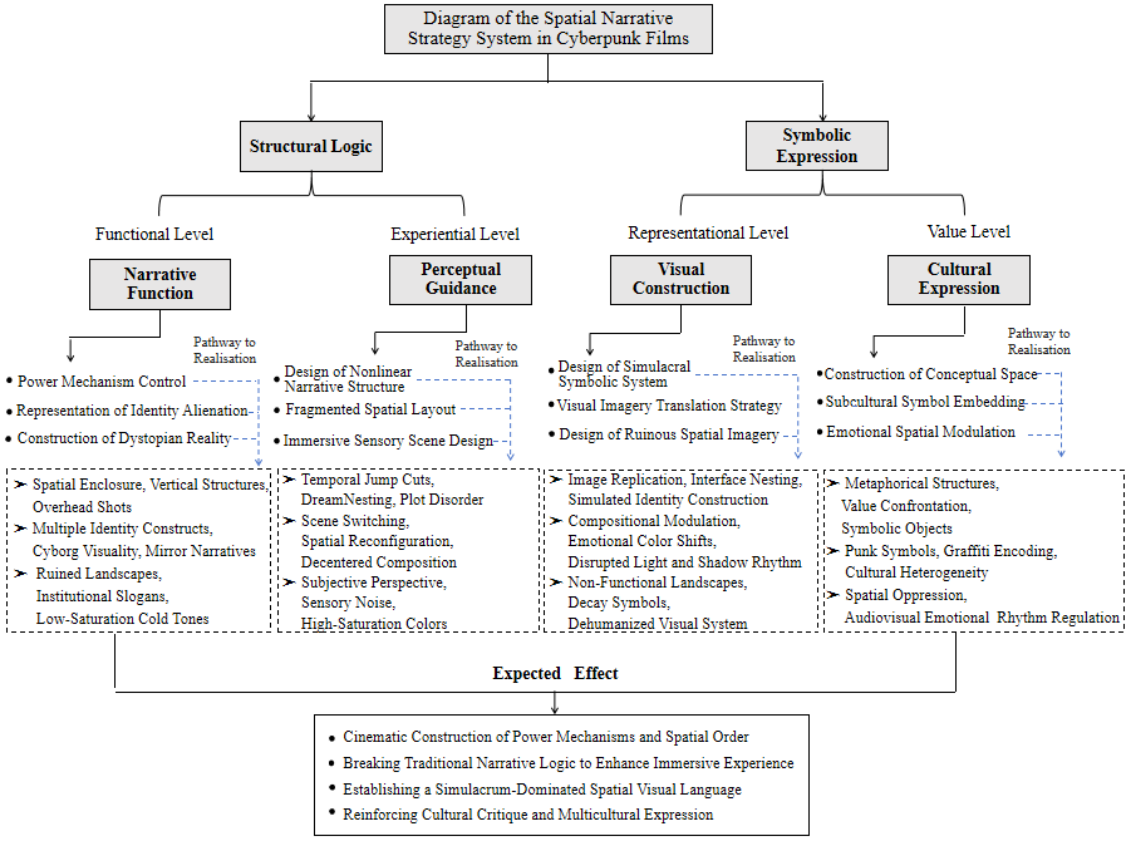

Figure 5. Strategic Framework of Spatial Narrative in Cyberpunk Films

4.1 Spatial Narrative Construction Driven by Power Mechanisms

In cyberpunk cinema, space serves not only as the narrative backdrop but also as the visual carrier of power logic. Its functional expression is often embodied through enclosed architecture, vertical spatial hierarchies, and panoramic surveillance devices, rendering power not only implicitly pervasive but also figurative and visualised. Such spatial design not only reveals the social mechanisms of control and discipline but also intensifies the fragmentation of identity and alienation of the subject under technological intervention, highlighting the tension between the individual and the system. In addition, disordered, ruined, and low-light scenes construct a dystopian spatial atmosphere that not only evokes a sense of oppression and powerlessness but also alludes directly to the paradox between technology and order in modern society.

At this level, space becomes a symbolic medium of disciplinary power and a concentrated expression of narrative oppression.

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4.2 Perceptual Experience and Viewing Immersion

Perceptual design emphasises the audience's active participation and cognitive construction during the viewing process. Cyberpunk films often disrupt traditional linear logic through non-linear narrative structures—such as temporal jumps, memory dislocations, and ruptured causality—to guide the audience along an indeterminate narrative path. This narrative strategy, combined with fragmented spatial layouts—featuring jump cuts, dislocated collages, and labyrinthine compositions—intensifies the viewer's sense of spatial disorientation and the impulse toward perceptual reconstruction. Meanwhile, immersive sensory scenes, realised through first-person perspectives, audiovisual dislocation, and sensory simulation technologies, create a physical and psychological bridge between the viewer and the image. As a result, narrative space expands beyond the screen into an extended realm of psychological perception.

The construction of this experiential layer not only enhances the immediacy of viewing but also evokes unconscious-level existential doubt and a destabilised sense of reality in the viewer.

4.3 Integration of Visual Expression and Image Aesthetics

Narrative aesthetics at the visual level is one of the most recognisable dimensions of cyberpunk spatial style. Through image replication, mirrored structures, and information interfaces, the film constructs a spatial logic in which reality is displaced and symbols dominate. What the audience perceives is no longer reality itself, but a reconstructed image of it.

Simultaneously, changes in colour, the dynamic modulation of composition, and the rhythmic interplay of light and shadow continuously reshape spatial emotion, turning the image into a grammatical system of affect. Particularly in the visual treatment of ruined spaces, rusted metal components, decaying functional structures, and fractured urban boundaries collectively construct a visual imagination of the "post-technological wasteland."

This visual narrative not only expresses the decay of technological civilisation but also shapes a cold, detached, yet aesthetically intense visual style—an inseparable element of cyberpunk aesthetics.

4.4 Synergy of Cultural Expression and Value Connotation

The spatial strategy at the value level aims to make the image transcend narrative function and become a symbolic container of cultural positions and ideologies. Through the construction of conceptual space, the film embeds philosophical discourse and political metaphors into architectural structures and scene compositions, transforming space itself into a medium for reflecting on human destiny, freedom, and technological dependence. At the same time, the extensive embedding of subcultural symbols—such as punk aesthetics, street graphics, multilingual signage, and digital graffiti—not only establishes the distinctive fringe visual system of cyberpunk but also represents the cultural self-expression of marginalised groups and their resistance to mainstream societal order. Emotional spatial modulation, on the other hand, evokes collective emotional memory through the psychological manipulation of colour desaturation, closed framing, and environmental design, thereby generating cultural resonance and psychological identification among viewers.

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Ultimately, this spatial strategy enables the image to both express and carry meaning—with critical intensity and cultural depth.

5. Conclusion

Based on the grounded theory methodology, this study used MAXQDA 2022 qualitative analysis software to code and analyse 284 diverse textual materials related to spatial narratives in cyberpunk films. It extracted the key elements and underlying logic of these narratives and accordingly constructed a theoretical model.

This model includes four core components: power control, visual simulacra, cultural symbolism, and perceptual reconstruction. A systematic analysis of the spatial narrative mechanism of cyberpunk films was conducted. Through coding, categorisation, and theoretical modelling of representative film texts, four dominant dimensions were identified—functional construction, perceptual experience, visual expression, and cultural value—leading to the development of a spatial narrative strategy system comprising 12 specific strategies.

This system reveals that space in cyberpunk films functions not only as a narrative backdrop, but also as a crucial medium for power mechanisms, visual composition, and cultural expression, jointly driving narrative evolution at both the structural and semantic levels. Specifically, the functional construction dimension focuses on the disciplinary logic of spatial order and the shaping of dystopian landscapes. The perceptual experience dimension addresses the cognitive reconstruction induced by non-linear structures and immersive mechanisms. The visual expression dimension highlights the image language formed through mimetic systems and ruin imagery. The cultural value dimension enables the multiple expressions of subcultures and ideologies through symbolic embedding and emotional modulation. The synergy of these four dimensions constructs a multi-layered and interactive spatial narrative framework, offering a structured path for analysing the aesthetic logic and cultural significance of the cyberpunk genre.

As a stage of research output, the applicability and theoretical stability of the proposed strategy system will be further verified using a broader range of cyberpunk film samples. In addition, the variation paths of spatial narrative mechanisms across different contexts, cultures, and media forms will be explored, aiming to build a more systematic and forward-looking evaluation framework for cyberpunk spatial narratives. This will offer both theoretical support and methodological guidance for the future spatial construction and aesthetic practice of the genre.

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