CROSS-CULTURAL

DIALOGUES IN ART AND TECHNOLOGY 2026

INTERNATIONAL FORUM AND COLLABORATIVE SESSIONS | 26 - 30 JANUARY 2026

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CROSS-CULTURAL DIALOGUES IN ART & TECHNOLOGY 2026

International Forum & Collaborative Sessions

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CROSS-CULTURAL DIALOGUES IN ART & TECHNOLOGY 2026
International Forum & Collaborative Sessions

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CONGRATULARY MESSAGE FROM DEAN OF FACULTY OF MEDIA TECHNOLOGY OF APPLIED ARTS PROJECT (SCHOOL OF ARCHITECTURE AND DESIGN)



Asst. Prof. Waraluk Pansuwan

Acting Head of the Project Administrative Corporation in Media Arts and Media Technology Curriculum
King Mongkut's University of Technology Thonburi

Ladies and gentlemen,

It is my great pleasure to welcome you to the International Academic Forum on Creative Contents (Cross-Cultural 2026), hosted by King Mongkut's University of Technology Thonburi (KMUTT). We are delighted to gather here today with scholars, practitioners, and creative professionals from diverse backgrounds to engage in meaningful academic and cultural exchange.

This forum serves as a vibrant platform for dialogue on emerging research and industry trends in AI, animation, webtoons, storytelling, painting, and ceramic art—fields that are being rapidly reshaped by the convergence of advanced technology and creative practice. We are honored to convene approximately 40 distinguished experts from five countries, participating both online and onsite, to share their insights, experiences, and visions for the future.

The creative content industry is currently undergoing a remarkable renaissance. Rapid technological advancement, the expansion of digital and streaming platforms, and a growing global appetite for diverse narratives have opened new frontiers of possibility—while simultaneously presenting fresh challenges that call for critical reflection, ethical consideration, and sustained innovation. I believe this forum will provide a timely opportunity to engage deeply with these dynamics and to further strengthen the bridge between academia and industry through dialogue and collaboration.

Finally, I extend my sincere appreciation to the organizing committee and dedicated staff for their commitment and professionalism, and to each of you for your active participation. May this gathering inspire new perspectives, foster lasting partnerships, and contribute meaningfully to the future of creative contents across cultures.

Thank you very much.

CONGRATULARY MESSAGE FROM DEAN OF FACULTY COLLEGE OF ARTS PUSAN NATIONAL UNIVERSITY



Dr. Hyunseok Lee
Director of Plastic Arts Research Center
Pusan National University

Honored guests, esteemed colleagues, and distinguished participants,

It is a great privilege and an honor to represent Pusan National University (PNU) at the opening of the International Academic Forum on Creative Contents(Cross-Cultural 2026). I am sincerely delighted to join you on this meaningful occasion. Hosted by King Mongkut's University of Technology Thonburi (KMUTT), this forum brings together leading scholars, experts, and innovators from five countries to exchange ideas and explore new directions across a wide range of creative fields, including AI, animation, webtoons, storytelling, painting, ceramic art, and beyond. More than an academic gathering, this forum serves as a vital platform for fostering cross-cultural dialogue, building lasting international connections, and collectively advancing creative contents in an era of rapid technological transformation.

In today's highly interconnected and ever-evolving world, the creative industries are experiencing profound change. The expansion of digital platforms, the globalization of cultural production, and the increasing demand for diverse perspectives present both unprecedented opportunities and complex challenges. In this context, forums such as this play a crucial role in enabling us to reflect together, share insights, and pursue innovation through collaboration.

I would like to extend my sincere appreciation to the organizers and dedicated staff of King Mongkut's University of Technology Thonburi (KMUTT) for their vision, commitment, and tireless efforts in making this forum possible. On behalf of Pusan National University, I warmly congratulate KMUTT on the successful organization of this distinguished forum and extend my best wishes for a stimulating and fruitful exchange for all participants. May this gathering inspire new ideas, strengthen international partnerships, and open pathways toward a vibrant and sustainable future for the global creative contents industries.

Thank you very much.

CROSS-CULTURAL DIALOGUES IN ART & TECHNOLOGY 2026

International Forum & Collaborative Sessions

26-30 January 2026

Ground Floor, Theater room, Media Technology and Applied Arts (A1), King Mongkut's University of Technology Thonburi, Bang Khun Thian Campus, Bangkok, Thailand

Event Schedule

Date	Time	Program
Jan 26	13:00 – 15:00	Discussion Meeting (Session1)
Jan 27	09:30 – 10:00	Registration / Welcome
	10:00 – 12:30	Conference + Presentation (Part 1)
	12:30 – 13:30	Lunch
	13:30 – 15:00	Conference + Panel Discussion (Part 2) "AI-Generated Graphics and the Evolution of Cinematic Narrative Structures"
	15:00 – 16:30	KMUTT Showcase
Jan 28	10:00 – 10:15	Morning Briefing
	10:15 – 12:30	Conference + Presentation (Part 3)
	12:30 – 13:30	Lunch
	13:45 – 15:00	Conference + Panel Discussion (Part 4) "Enhancing Accessibility in Education through AI-Driven Animation"
	15:00 – 16:30	PNU Showcase
Jan 29	10:00 – 12:00	Post-Conference Review
	12:00 – 13:00	Lunch
	13:00 – 16:30	Campus Tour (KMUTT)
Jan 30	10:00 – 12:00	Board Meeting (Wrap-up / Next Steps)

ORGANIZING COMMITTEE

Patron	Waraluk Pansuwan
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CROSS-CULTURAL DIALOGUES IN ART & TECHNOLOGY 2026

International Forum & Collaborative Sessions

The 1st 2026 ASIA Creative Content Forum: Cross-Cultural Dialogues in Art & Technology
- Hosted by University Thailand King Mongkut's & Pusan National University
- Forum schedule: 26th(Mon) Jan. 2026 - 30th(Fri) Jan.

◎ 2026.1.27.(Tuesday)

Time	**Program 1. Conference and Presentation** Session Chair: Martsamrit Pasupa [15minutes presentations]
9:30	Registration / Welcome
10:00	History of Tokusatsu in Thailand Pavarit Sitisanguansak[1] Sakonpat Chotpatthamanon[2], Chakrapipat Assawaboonyalert[3]
10:15	Projection of the Negative Anima and Cycles of Ego Destruction in The Witness: Focusing of Jung's Theory of Individuation Yumi Kim[1], Hyunseok Lee[2]
10:30	The Simultaneity of Digital Sound and Visual Information: The Aesthetic Characteristics of Ryoji Ikeda's Media Art Miao Qi[1], Hyunseok Lee[2]
10:45	Pre-Production Gag Management in Animated Series: An Empirical Study of Scriptwriting, Storyboarding, and AI-Assisted Decision Support Azaini Manaf[1]
11:00	Validating Displacement Map Quality in Generative Methods - An SSIM-Centered Analysis Zihao Zhou[1], Hyunseok Lee[2]
11:15	Emotional Engagement as Visual Dialogue on Digital Platform Study Case in @MilkCafe Instagram Account Evan Raditya Pratomo[1], Hutomo Setia Budi[2], Petra Cleopatra[3], Jessica Ethelind[4], Joan Nathania[5], Alexander Bagaskara[6]
11:30	Production and Aesthetic Shaping of Digital Art in the Digital Age Wenjiang Zhao[1]
11:45	On the Interweaving of Modernity, Ecological Ethics and Post-human Civilization from the Film "Frankenstein, 2025" Cao Yijun[1]
12:00	A Study of Lack of Warmth Children's behavior in order to reflect family issues through 2D animation Chalisa Thongrueangsuksai[1], Wisit Supangkaratana[2]
12:15	A Study of Design of a Sex Education Stroybook for Children Aged 5-8 Years through Paper Craft Technique Chompoonik Pakdee[1], Patcharee Panyangnoi[2]
12:30	Lunch time
	Program 2. Conference and Panel Discussion Session Chair: Wisit Supangkaratana [15minutes presentations]
13:30	"AI-Generated Graphics and the Evolution of Cinematic Narrative Structures"
15:00	KMUTT Showcase

◎ 2026.01.28.(Wednesday)

Time	**Program 3. Conference and Presentation** Session Chair: Hyunseok Lee [15minutes presentations]
10:00	Morning Briefing
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10:30	Quantifying the Authenticity Gap: A Computer Vision Approach to Managing Style Drift in AI-Generated Digital Heritage Zhengjun Lu[1], Hyunseok Lee[2]
10:45	A Study on the Identification and Fandom Formation of Virtual Idols: Philosophical Analysis of the Meaning of'Red Pill'in PLAVE Fandom Yejin Hong[1], Hyunseok Lee[2]
11:00	Design of Zhaojun IP Image Based on Emotional Design Theory Han Zhe[1], Jiang Haitao[2]
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11:45	Exploring the Innovative Paths of AIGC Empowering Art Education Based on Cognitive Load Theory Wang Yuanxue[1]
12:00	Digital Migration of Cultural Menory and the Construction Mechanism of Collective Memory in Chinese Independent Animation: A Case Study of Chinese Poem Choir, 2015 Lin Xiao[1]
12:15	Generative vs. Assistive AI: Transforming Creative Workflows in Comic Publishing Fythullah Hamzah[1], Ahmad Azaini Abdul Manaf[2]
12:30	Lunch time
	Program 4. Conference and Panel Discussion Session Chair: Yumi Kim [15minutes presentations]
13:30	"Enhancing Accessibility in Education through AI-Driven Animation"
15:00	PNU Showcase

History of Tokusatsu in Thailand

Pavarit Sitisanguansak[1], Sakonpat Chotpatthamanon[2], Chakrapipat Assawaboonyalert[3]

B.A Student, Media Arts, King Mongkut's University of Technology Thonburi, Thailand[1]

Lecturer, Media Arts Program, King Mongkut&s University of Technology Thonburi, Thailand[2]

Lecturer, Media Arts Program, King Mongkut&s University of Technology Thonburi, Thailand[3]

Abstract

This paper presents the application of the history of Tokusatsu in Thailand. In film production, various special effects techniques are employed, one of which is known as tokusatsu. This technique involves the use of rubber suits combined with other elements to narrate cinematic stories. Originating in the 1960s, tokusatsu has evolved extensively, leading to renowned production bands and series such as Ultraman, Kamen Rider, and Super Sentai. These have garnered sustained popularity across multiple countries. Thailand ranks among the earliest nations profoundly influenced by tokusatsu, prompting the local production of similar media during a timeframe contemporaneous with Japan. However, these efforts lacked continuity, often encountering copyright issues that caused many special effects film projects to fade from the Thai media landscape. Fan communities passionate about these action hero series have nonetheless perpetuated developments into the present day. The ensuing report synthesizes these insights to illuminate the influence of tokusatsu techniques on the creative extension and production of Thai tokusatsu films, as detailed below.

Key Words: Tokusatu, Kaiju,HenshinHero

1. Introduction

Tokusatsu as a Distinctive Japanese Filmmaking Technique Tokusatsu refers to a specialized set of special effects techniques employed in Japanese film and television production. This practice gained widespread popularity during the 1960s and was adopted by numerous companies within Japan's film industry. Tokusatsu content achieved global acclaim, extending its influence far beyond Japan. In subsequent decades, production rights were licensed to international markets, facilitating adaptations and distributions worldwide. During its golden age, leading studios spearheaded iconic franchises, including Ultraman produced by Toho and Kamen Rider alongside the Super Sentai (Five-Color Squadron) series from Toei Studio—properties that retain enduring popularity into the present day.

2. Tokusatsu in Japan and Thai

The inaugural Tokusatsu film to achieve widespread theatrical release and public acclaim was Godzilla (1954), featuring special effects designed by Eiji Tsuburaya. This production ignited the "Kaiju boom," a cultural phenomenon that popularized monster-led narratives, with "Kaiju" becoming the genre's defining term. The surge in popularity across Japan prompted numerous studios to produce subsequent Kaiju films, capitalizing on the trend. Building on this momentum, Tsuburaya launched his independent television series Ultra Q (1966), which garnered significant viewership during its era. To sustain the Kaiju boom, TBS commissioned the development of the first Kaiju hero, Ultraman (1966), whose global success—facilitated by international licensing—spawned a wave of similar programs (e.g., Napier, 2006). However, escalating production costs and the waning Kaiju boom challenged the genre's viability. Toei Company responded by producing Kamen Rider (1971), a cost-effective Tokusatsu television series that achieved iconic status and inspired widespread emulation across studios. This era marked a shift toward embedding moral and ethical lessons for Japanese youth, with narratives emphasizing virtues such as justice and perseverance. These series have persisted across multiple eras, categorized chronologically as Showa (1926–1989), Heisei (1989–2019), and Reiwa (2019–present), enduring brief hiatuses in some franchises while maintaining strong domestic and international appeal (e.g., Yasuda, 2020).

2.1 Japanese tokusatsu





2.2 Thai tokusatsu

Thai Adaptations of Japanese Tokusatsu: From Dubbing to Local Productions in Thailand, one of the earliest adopters of Japanese Tokusatsu—special-effects media featuring superheroic narratives—television networks began dubbing and broadcasting these programs, which quickly garnered substantial popularity. This enthusiasm spurred local production efforts, notably by Chaiyo Productions, which pioneered Thai Tokusatsu films employing innovative special effects techniques, such as the groundbreaking "Thai Kick," captivating audiences in their era. Key examples include Jumbo A vs. Yak Wat Jaeng (1980s), Hanuman Meets the Seven Superhumans, Hanuman vs. the Five Red Ants, and Hanuman Meets the Eleven Superhumans. However, these ventures encountered legal challenges; in 2007, Tsuburaya Productions, the rights holders of Ultraman, initiated litigation against Chaiyo for unauthorized use of the character, resulting in the suspension of filming and release for the proposed Project Ultraman (filed circa 2001–2007). Meanwhile, in 2006, independent Thai filmmakers produced Mercury Man, a landmark Tokusatsu feature that achieved commercial success. Thai television networks followed suit: Channel 9 aired Crystal Knight, while Channel 7 broadcast Sport Ranger, both series proving immensely popular and spawning a second season for Sport Ranger in 2012. That same year marked a milestone in international collaboration, with the joint Thai-Japanese development of Miraigar T1, a locally inspired Tokusatsu hero project.



3. Problem of Thai and Japan license of Ultraman

The Thai-Japanese Ultraman Copyright Dispute: A Cautionary Case in Intellectual Property and Cultural Claims In the copyright infringement dispute between Thailand and Japan concerning Ultraman, the conflict arose from the unauthorized production of films incorporating characters from the Ultraman franchise. Chaiyo Productions asserted original ownership rights over Ultraman, prompting Tsuburaya Productions to file a countersuit. This litigation extended over several years, culminating in a 2020 Thai court ruling that affirmed Tsuburaya's copyright ownership, encompassing even the films produced in Thailand. The verdict serves as a critical lesson for Chaiyo Productions and similar entities, underscoring the necessity to forgo unsubstantiated claims. Notably, it reframes these films not as proprietary assets but as elements of national cultural heritage.

4. Development and Problem Resolution

Copyright issues surrounding characters and works in tokusatsu demonstrate that, technically, Thailand is capable of producing tokusatsu films provided that original designs are employed. This realization prompted the author to experiment with a short tokusatsu-style film remaking Shin Kamen Rider as part of doctoral research. Subsequently, this approach was applied to an original narrative and character design in a subsequent production, which garnered positive reception. 5. The Future of Thai Tokusatsu Contemporary Thai tokusatsu productions predominantly take the form of fan-made works, driven by enthusiasts' passion for designing their own heroes and employing tokusatsu techniques. These efforts have generated substantial interest upon release, underscoring the enduring appeal and popularity of tokusatsu methods. Such productions enable storytelling at relatively low costs while leveraging human craftsmanship more extensively than AI-driven alternatives. These insights indicate that further development and advancement of tokusatsu techniques in Thailand hold significant potential to cultivate national imagery and identity, instill moral values, and elevate the stature of Thai cinema. The author has extended these findings into their own thesis work.



Observational Analysis of Design Evolution in Kamen Rider Suits



Evolution of Protective Gear Design in Shōwa and Heisei Eras In the Shōwa era (1926–1989), protective gear featured full-face helmets paired with minimal body armor, limited to leather suits, gloves, and boots. This configuration gradually evolved into full-body rubber suits, incorporating articulated joints for enhanced mobility and functionality. By the Heisei era (1989–2019), designs advanced further with added plating at the legs, torso, shoulders, and wrists, culminating in comprehensive full-body armor reminiscent of medieval knightly plate. Thematic color schemes further distinguished these iterations, reflecting cultural and narrative influences in media arts and design.



In its early phase, the aesthetic employed subdued, monochromatic tones with minimal color blending, emphasizing simplicity and restraint. Subsequent experimentation introduced novel hues alongside metallic material finishes, such as silver and gold, marking a shift toward richer visual textures. Toward the later period, the palette evolved into vibrant, saturated candytone effects, coinciding with advancements in visual effects (VFX) that enhanced chromatic dynamism and synthetic vibrancy.

https://www.youtube.com/watch?v=Enth8GZbxYg

https://youtu.be/vgOUE7EJOMI?si=ExYB7RRGngufdZmv&t=45

In its early stages, the approach relied on camera angle techniques for narrative storytelling, coupled with cost-effective problem-solving strategies. Over time, it evolved to incorporate era-specific special effects techniques, and in contemporary practice, CGI has become the primary tool, enhancing the overall production without fully replacing the actors' costumes throughout the film. I experimented with this methodology across various short films produced in different academic years, with results as follows: https://youtu.be/xsagYXP6tp0

https://youtu.be/UY7eK1QF4KQ

https://youtu.be/UkJ2qqcZ8SA

https://youtu.be/gyZbZ_jV4AI (Shot ver.)

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Projection of the Negative Anima and Cycles of Ego Destruction in *The Witness*: Focusing on Jung's Theory of Individuation

Yumi Kim[1], Hyunseok Lee[2]

BK Research Professor, Department of Design (Major of Animation), Pusan National University, S. Korea[1]
Professor, Department of Design (Major of Animation), Pusan National University, S. Korea[2]

Abstract

This article analyzes *The Witness*(2019) from Netflix's Love, Death & Robots through Jungian analytical psychology. Focusing on persona, shadow, anima, and individuation, it examines how the looped narrative and visual style represent a psyche unable to integrate the unconscious. The male figure embodies a rigid persona, while the female figure functions as a projected negative anima fused with the shadow, turning murder and pursuit into an inner psychic conflict. Urban spaces, neon interiors, and symbolic motifs visualize a split between emptied consciousness and the unconscious. The loop structure and serpent imagery ultimately depict an inverted individuation narrative trapped in compulsive repetition.

Key Words: Alberto Mielgo, The Witness, individuation, anima, shadow

1. Introduction

Art has long served as a means to explore the unconscious, projecting the tension between consciousness and the unconscious through archetypal narratives. In Jungian terms, archetypes such as the shadow and anima/animus appear across literature, film, and animation, often depicting the consequences of failed integration, as seen in works like Dr. Jekyll and Mr. Hyde and Frankenstein.

This study examines *The Witness*(2019) from Netflix's Love, Death & Robots through Jungian analytical psychology. The male and female figures are interpreted as divided aspects of a single psyche, engaged in a conflict between ego and a repressed anima that cannot be integrated. The film's circular narrative represents a destructive inner loop rather than simple temporal repetition.

Through analysis of narrative structure and visual elements—such as the depopulated city, neon lighting, and symbolic bodies—this paper argues that The Witness visualizes an inverted individuation process, in which the failure to integrate the unconscious results in endless self-destructive repetition.

2. Theoretical Background

Jung conceived the psyche as a layered structure in which consciousness, centered on the ego, represents only a small portion of mental life, while unacknowledged experiences accumulate in the personal unconscious and deeper archetypal patterns reside in the collective unconscious. Core archetypes such as the persona, shadow, anima/animus, and the Self shape both psychological development and narrative imagination. The persona functions as a social mask enabling adaptation, but excessive identification with it suppresses instinct and emotion, strengthening the shadow—those denied aspects of the self that are often projected onto others. Although the shadow contains fear and desire, it is also a source of creative energy and must be confronted for psychological balance. Anima and animus, understood as inner feminine and masculine principles beyond biological sex, mediate between ego and unconscious; when unintegrated, they are projected outward, producing extreme or conflicted relationships. Individuation, in Jung's view, is the process by which the ego gradually integrates these unconscious elements to form a more unified personality. When this process fails, unconscious contents surface in compulsive, repetitive, or destructive forms, making art and narrative powerful sites for visualizing conflicts between ego, shadow, and the unrealized Self.

3. Analysis of Failed Individuation in The Witness

The film depicts a woman who witnesses a man after a gunshot and flees, while the man pursues her, recognizing her as identical to a woman he previously killed. Their confrontation ends in the same room, with the man now dead and the cycle ready to repeat, suggesting an endless exchange of roles.

This study interprets the loop through Jungian theory, reading the man and woman as persona and anima. Their first gaze marks the ego's encounter with the unconscious,

but fear and violence replace integration. The repeated deaths thus represent a failed individuation, trapping the psyche in compulsive repetition.

3.1 The Man's Anima and Shadow

The two characters in The Witness can be read as an unintegrated persona and anima. The man embodies a socially disciplined persona through his calm behavior and orderly appearance, while the woman's exaggerated makeup, mask-like face, tattoos, and disordered body signal a rejection of social norms. She thus appears as the man's negative anima, fused with his shadow and personified as a feared and repressed aspect of his unconscious.

According to Jung, when the anima is repressed or underdeveloped, it takes on destructive qualities and merges with the shadow. In the film, murder, violence, and endless pursuit visualize this process: the man projects his suppressed aggression, sexuality, and instinctual drives onto the woman and attempts to destroy them, ultimately destroying himself. Symbolic encounters through windows, mirrors, and masks mark repeated confrontations between consciousness and the unconscious.

The woman's role as a stripper further clarifies this dynamic. As a figure of sexual taboo and objectification, she represents the man's repressed desires and a distorted anima reduced to a seductive and destructive image. This reflects Jung's notion of an immature anima, which becomes compulsive and violent when emotional integration fails.

3.2 Representation of the Shadow

The Witness visualizes Jung's unconscious through contrasting urban spaces. The empty city streets, defined by repetitive high-rise buildings and the absence of people, function as an external projection of an ego cut off from the unconscious, symbolizing repression, isolation, and emotional sterility. The impressionistic visual style—2D textures mapped onto 3D forms—reinforces a dreamlike psychological space governed by subjective perception rather than objective reality.

In contrast, the strip club represents the realm of repressed desire, where the persona collapses and the shadow emerges through masks, distorted costumes, and excessive lighting. The woman's flight into the street after removing her mask exposes the ego's disavowed desires, while the man's violence reveals his inability to accept the anima, turning confrontation with the unconscious into destruction. This spatial opposition dramatizes the fractured psyche produced by failed integration.

The ouroboros, depicted as a serpent or dragon, symbolizes cyclical self-destruction and renewal. Jung viewed it as an image of the primordial unconscious and a mandala of individuation. In The Witness, it signifies the endless murder loop. The serpent imagery of the woman's dress and dragon tattoo further links her to the shadow and collective unconscious. Lacking a heroic victory over the dragon, the episode presents an inverted individuation narrative in which the ego fails to integrate the unconscious and remains trapped in repetition.

4. Conclusion

Alberto Mielgo's The Witness, an episode of Love, Death & Robots, presents a destructive loop narrative in a highly symbolic form. This paper analyzes the episode through Jungian analytical psychology—focusing on persona, shadow, anima/animus, and individuation—by examining character design, narrative structure, and visual style. Rather than interpreting the repeated violence as a literal time loop between a man and a woman, the study reads it as a projection of the man's inner psychic conflict, in which a repressed anima fails to integrate with the ego.

The man represents a rigid social persona governed by order and moral norms, while the woman functions as a negative anima fused with the shadow, onto which sexual and violent impulses are projected. By externalizing and attempting to destroy her, the man symbolically attacks his own unconscious, resulting in a cycle of failed individuation. The recurring pursuit and murder thus signify psychological repetition rather than narrative symmetry.

Spatial imagery supports this interpretation: the empty, repetitive cityscape reflects a dehumanized consciousness, while the neon-lit club operates as a site where repressed desire and shadow emerge. The impressionistic visual style further frames the episode as a subjective psychological space, illustrating how the refusal to integrate the anima traps the psyche in a self-destructive loop.

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The Simultaneity of Digital Sound and Visual Information: The Aesthetic Characteristics of Ryoji Ikeda's Media Art

Miao Qi[1], Hyunseok Lee[2]

Ph.D. Candidate, Department of Design (Major of Animation), Pusan National University, S. Korea[1]
Professor, Department of Design (Major of Animation), Pusan National University, S. Korea[2]

Abstract

This study examines the media art of Japanese artist Ryoji Ikeda through the lens of the simultaneity of digital sound and visual information, focusing on its aesthetic and perceptual dimensions. Within the context of an information society shaped by rapid digital development, Ikeda's practice draws on data from mathematics, physics, and information science, which are translated through algorithmic processes into tightly synchronized sonic and visual forms. Using textual analysis and close readings of selected works, the study analyzes Ikeda's practice in terms of artistic expression, production processes, and audience experience. The findings show that sound and image in his works operate through a non-narrative logic of simultaneity, forming an integrated perceptual environment rather than functioning as separate elements. This approach shifts the viewer's engagement from interpretive meaning toward embodied sensory experience, offering insights into perception, presence, and media aesthetics in contemporary digital art.

Key Words: Ryoji Ikeda, media art, simultaneity, immersive perception

1. Introduction

From the late twentieth century onward, Japan's sustained advancement in electronic engineering, information technologies, and commercially produced digital devices has created a strong material and technological basis for the emergence of media art. As Japanese society increasingly became organized around information and digital systems, media art practices evolved from initial demonstrations of technological innovation toward more critical inquiries into media structures, perceptual processes, and the conditions of the information society itself.

Within this historical and cultural context, Ryoji Ikeda stands out as a key figure in Japanese media art. Rather than employing narrative-driven or interactive formats, Ikeda develops an aesthetic approach focused on sensory intensity and precise temporal coordination. His works are constructed from elemental components—sound, visual form, and data—which function as the primary means of artistic expression.

Scholarly discussions of Ikeda's practice generally fall into three main categories. One line of research interprets his work as an extension of minimalist electronic music and conceptual art traditions. A second strand examines the formal and technical organization of his works through frameworks of data visualization and sonification. A third approach applies posthuman theory or media philosophy to analyze the relationships between human perception and non-human technical systems embedded in his practice. While these perspectives offer valuable insights, they often adopt a single-medium focus, addressing either the auditory or the visual dimension in isolation and overlooking the integrated system through which sound and visual information are produced simultaneously.

Yet the defining characteristic of Ikeda's work lies precisely in the temporal synchronization and structural correspondence between digital sound and visual information. This synchronized generation forms the core logic of his audiovisual practice.

To examine this dimension, the present study combines textual analysis with close analysis of selected artworks, concentrating on the generative principles of sound and image and their tightly coupled temporal relationship in Ikeda's representative works.

2. Analysis of Ryoji Ikeda's Creative Style

Ryoji Ikeda's media art is concerned not with data as a representational object but with how data is perceived through human sensory experience. His works convert vast amounts of information—normally inaccessible to direct perception—into precisely synchronized sound and image, producing an integrated multisensory environment. Rather than relying on physical materials or references to the empirical world, Ikeda draws on abstract datasets from mathematics, physics, and information science as the basis of his artistic practice.

Both sonic and visual elements in Ikeda's works are generated through computational processes rather than derived from recorded or representational sources. Sound is produced through mathematically generated sine waves, while visuals consist of fully synthetic digital forms created through programming. This approach shifts his practice away from representational aesthetics toward an exploration of the operational logic of digital systems.

Ikeda's sound compositions are characterized by

extreme minimalism and precision. Through repetition and looping, his works replace linear musical development with continuous sonic states in which rhythm functions alongside pitch, density, and layering to form a stable perceptual field. Although change within individual pieces is limited, viewing his work across albums or series reveals a nonlinear temporal structure that extends across multiple scales. A similar minimalist logic governs his visual practice, which relies on monochromatic palettes, abstract geometries, and diagrammatic forms closely aligned with sound structures. In the datamatics series, identical datasets are translated simultaneously into rapidly shifting visual patterns and layered sonic frequencies, resulting in strict audiovisual synchronization. Because sound and image emerge from the same data source, perceptual boundaries between media dissolve, creating a unified sensory expression of a single data-driven structure.

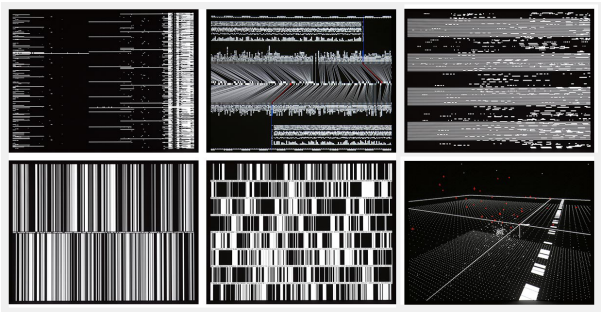


Fig. 1. High-speed visual patterns rendered in the datamatics series through algorithmic processes

3. The Isomorphic Generation Mechanism of Sound and Image

This section investigates the generative principles underlying Ryoji Ikeda's artistic practice, focusing on the roles of data, algorithmic processes, and cross-media translation in the production of his works. In contrast to traditional art forms that emphasize the transformation of physical materials, Ikeda's practice is grounded in the direct manipulation of data itself. Datasets derived from mathematics and the natural sciences function as primary sources and are processed through programming to produce auditory and visual outputs simultaneously.

Within this framework, sound and image do not follow a linear sequence of production but arise concurrently as parallel expressions of a shared dataset. Key sonic attributes—such as frequency, rhythmic patterning, and intensity—are mapped onto corresponding visual components, including points, lines, geometric configurations, and dynamic movement. This structurally homologous mode of generation enables a high degree of temporal synchronization and formal consistency between auditory and visual elements. As a result, the close alignment of sound and image establishes the aesthetic condition of simultaneity that characterizes Ikeda's media art.

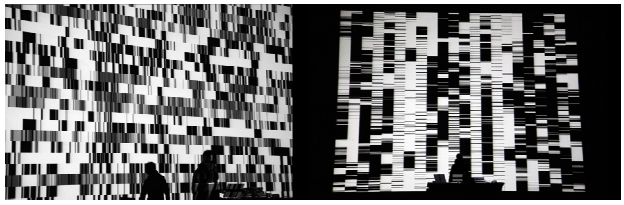


Fig. 2. In test pattern[live set], visual stripe width is equivalent to sound intensity, stripe frequency corresponds to rhythm, and their ordering constitutes the temporal structure of the sound.

4. Non-Narrative Simultaneity and Immersive Perceptual Experience

Building on the shared generative framework of sound and image, this section explores how simultaneity in Ryoji Ikeda's works shapes perception and aesthetic experience. As his artworks do not rely on narrative progression or symbolic meaning, viewer engagement is not directed toward interpretation but is instead activated through the intensity of sensory stimulation.

In Ikeda's installations, minimal and repetitive sonic structures are precisely synchronized with rapidly changing or densely layered visual forms, exposing the viewer to multiple sensory inputs at once. These stimuli operate collectively rather than sequentially, acting upon the body as a unified sensory field and producing a strongly immersive experience.

Under these conditions, time is no longer perceived as linear progression but as an extended or suspended duration, while space emerges as a perceptual environment jointly constituted by sound and image. Simultaneity thus functions not merely as a formal attribute but as an operative strategy that reorganizes sensory experience and reshapes the viewer's perception of time, space, and embodied presence.

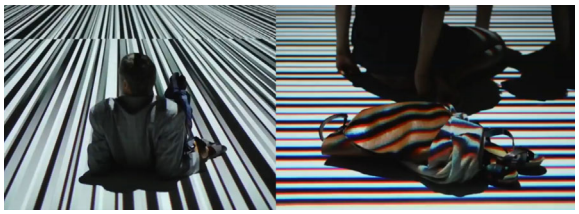


Fig. 3. Viewers and physical objects incorporated into the artwork

5. Conclusion

This study has examined the media art of Ryoji Ikeda through the lens of the simultaneity between digital sound and visual information, with the aim of clarifying its aesthetic and perceptual dimensions. The analysis demonstrates that in Ikeda's practice, auditory and visual elements are not produced as autonomous components but emerge concurrently from a shared data source, exhibiting a high level of temporal alignment and structural correspondence. Operating within a non-narrative framework, this mode of simultaneity enables an embodied and immersive form of perception, through which viewers experience time as extended or suspended, space as a dynamically constituted sensory field, and presence as an active, bodily condition.

Situating Ikeda's work within the broader contexts of

Japanese media art and contemporary digital art further reveals that his practice does more than mirror the conditions of a data-oriented society. It also provides a critical framework for reconsidering how perceptual experience is structured under digital conditions. Taken as a whole, Ikeda's media art articulates a distinctive artistic trajectory that foregrounds data as its primary material, simultaneity as its organizing principle, and sensory perception as its central concern. In doing so, it offers meaningful contributions to ongoing discussions in digital art studies, media translation, and theories of contemporary perception.

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Pre-Production Gag Management in Animated Series: An Empirical Study of Scriptwriting, Storyboarding, and AI-Assisted Decision Support

Azaini Manaf[1]

Lecturer, Department of Film Studies (Major of Film), Zhongnan University of Economics and Law, China[1]

Abstract

Frankenstein, as a seminal work in science fiction literature, profoundly explores the intricate relationship between technology and humanity, revealing characteristics of modernity. This paper examines the film "Frankenstein, 2025" through the lenses of modernity, ecological ethics, and post-human civilization, analyzing its underlying warnings and reflections. By dissecting technological power, moral responsibilities, and human identity, it exposes the ethical dilemmas and ecological crises confronting humanity in its pursuit of technological advancement.

Key Words: Modernity, Ecological ethic, Post-human civilization

1. Introduction

In animated series production, humour is commonly evaluated at the point of audience reception, yet it is fundamentally constructed much earlier during pre-production. Scriptwriting, story treatment, and storyboarding determine gag timing, character behaviour, narrative rhythm, and visual pacing elements that are difficult and costly to revise once animation enters production. Despite this, gag management remains largely intuition-driven, relying on creative experience rather than systematic planning.

This challenge is intensified in long-running cartoon series, where humour must remain effective across multiple episodes while adhering to strict schedules and budgets. Late-stage corrections caused by ineffective gags often result in increased production costs and tonal inconsistency. This paper argues that Artificial Intelligence can function as a managerial support system at the pre-production level, enabling creators to evaluate and refine gag design early without undermining creative autonomy.

2. Gag Comedy as a Pre-Production Management Problem

Gags in animation operate through expectation, emotional tension, and surprise. These elements are not created spontaneously during animation but are embedded within scripts, treatments, and storyboards. Scriptwriting establishes comedic intent and dialogue rhythm; treatments define narrative escalation and gag placement; storyboards translate these decisions into visual timing and spatial composition.

When gag decisions are poorly managed at pre-production, studios often compensate through late-stage revisions, additional animation passes, or tonal inconsistencies across episodes. These practices increase costs and dilute comedic clarity. Managing gag comedy as a pre-production planning problem therefore becomes essential for both creative quality and operational efficiency.

3. Artificial Intelligence in Pre-Production Decision Support

In this study, AI is positioned not as a creative generator but as a decision-support tool that enhances pre-production planning. AI enables the analysis of audience humour preferences, emotional response patterns, and engagement trends to inform early creative decisions. This allows writers, story editors, and storyboard artists to anticipate gag effectiveness before committing resources to animation.

By integrating AI into pre-production, studios can reduce trial-and-error, mitigate episodic fatigue, and maintain consistent comedic quality across series.

4. Methodology

A quantitative survey involving 108 participants from varied demographic backgrounds was conducted. Respondents evaluated gag-related constructs including character traits (attitude, mannerism, dialogue), repression, impulse of aggression or fear, and the element of surprise.

Pearson correlation analysis was used to examine relationships among variables, followed by multiple regression analysis to determine their predictive influence on gag effectiveness. The element of surprise was treated as the dependent variable, as it represents a core indicator of gag success.

5. Results

Table 1. Multiple Regression Coefficients Predicting Element of Surprise in Gag**

Predictor	B	Std. Error	β	t	Sig. (p)	VIF

(Constant)	0.74	0.31	—	2.39	.019	—
Character Traits (Attitude, Mannerism, Dialogue)	0.21	0.07	.22	3.01	.003	1.32
Repression Contribution	0.26	0.08	.27	3.38	.001	1.41
Impulse of Aggression or Fear	0.33	0.09	.35	3.87	<.001	1.36

Correlation analysis revealed significant positive relationships between character traits and comedic effectiveness ($r = .406$, $p < .001$), indicating the importance of script-level character construction. Repression showed a stronger relationship with character traits ($r = .592$, $p < .001$), highlighting the role of emotional buildup at the treatment stage. Impulse of aggression or fear demonstrated a stronger association with surprise than repression alone ($r = .421$, $p < .001$), emphasising the importance of timing and emotional disruption at the storyboard stage.

Multiple regression analysis further confirmed these findings. The overall model was statistically significant (Adjusted $R^2 \approx .32$), indicating that pre-production variables collectively explain a substantial proportion of variance in gag surprise. Impulse of aggression or fear emerged as the strongest predictor ($\beta \approx .35$), followed by repression ($\beta \approx .27$) and character traits ($\beta \approx .22$). These results demonstrate that gag effectiveness is shaped by layered pre-production decisions rather than isolated creative choices.

6. AI-Assisted Pre-Production Management Framework

Based on the empirical findings, this study proposes an AI-assisted pre-production management framework integrating scriptwriting, treatment development, and storyboarding. Character traits function as script-level controls, repression structures emotional pacing at the treatment level, and aggression or fear impulses refine surprise delivery during storyboarding.

AI supports this process by analysing audience data to inform early decisions, enabling creators to optimise gag timing and structure before animation begins. Feedback from released episodes can be re-integrated into the system, allowing iterative improvement across episodes and seasons.

6.1 Integrating Empirical Variables into a Pre-Production Management Logic

Taken together, these findings demonstrate that comedic effectiveness in animation is the result of structured, interrelated decisions made during pre-production. Character traits function as script-level determinants, repression operates as a treatment-level structuring mechanism, and aggression or fear impulses inform storyboard-level timing and surprise execution. The statistical relationships identified in this study validate these components as measurable design variables rather than abstract creative notions.

6.2 Regression Interpretation for Pre-Production Management

The regression results provide strong empirical justification for managing gag-based comedy as a layered pre-production process. The relative weighting of predictors reflects the sequential nature of creative decision-making in animation production. Character traits establish baseline comedic identity during scriptwriting, repression structures emotional buildup during treatment development, and aggression or fear impulses refine surprise delivery during storyboarding.

Importantly, the regression model demonstrates that no single variable dominates gag effectiveness entirely. Instead, humour emerges from the combined influence of narrative planning, character design, and visual timing. This finding validates the proposed AI-assisted pre-production management framework, which integrates insights across all three stages rather than optimising them independently.

From an AI perspective, regression modelling enables the translation of audience perception data into actionable guidance. AI systems can use similar multivariate models to predict gag performance based on script drafts, treatment outlines, or storyboard timing patterns. This allows studios to evaluate alternative creative options quantitatively before committing resources to full production, thereby improving efficiency without constraining creativity.

7. Implications for Production Efficiency

Embedding AI at the pre-production stage significantly enhances production efficiency by reducing late-stage revisions and inconsistent humor. Script, treatment, and storyboard decisions become more predictable, improving scheduling reliability and budget control. Importantly, this approach preserves creative autonomy while introducing analytical foresight into comedic planning, aligning artistic goals with industry pragmatism.

7.1 Implications for Production Efficiency and the Protection of Creative Practitioners

Embedding Artificial Intelligence at the pre-production stage has significant implications not only for production efficiency, but also for the protection and sustainability of creative practitioners in animated series production. In the context of gag-based comedy, writers, storyboard artists, and directors are often exposed to intense production pressure, particularly when humor fails to resonate with audiences and revisions are demanded late in the pipeline. Such conditions can lead to creative burnout, compressed deadlines, and the erosion of artistic agency. By introducing AI-assisted analysis early in scriptwriting, story treatment, and storyboarding, this framework reduces uncertainty and protects creative labor from unnecessary reactive revisions.

From a production efficiency perspective, AI-assisted pre-production management minimizes late-stage corrections by identifying potential weaknesses in gag timing, emotional pacing, and character-based humor before animation begins. This early-stage optimization stabilizes production schedules and improves budget control by reducing costly rework during animation, lighting, and rendering stages. However, the significance of this efficiency gain extends beyond cost reduction; it directly contributes to healthier working conditions for creative teams by reducing last-minute changes and unrealistic production demands.

8. Conclusion

This study reframes gag comedy not merely as a creative or aesthetic concern, but as a pre-production management challenge within animated series production. Rather than treating humour effectiveness as an outcome that can only be assessed after release, the findings demonstrate that gag success is shaped by structured decisions made during scriptwriting, story treatment, and storyboarding. By repositioning gag design within these early stages, the study highlights pre-production as the most critical control point for both comedic quality and production efficiency.

The empirical analyses provide strong grounding for this reframing. Correlation and regression results show that character traits, emotional repression, and impulses of aggression or fear significantly predict the element of surprise in gags. These variables correspond directly to script-level character construction, treatment-level emotional pacing, and storyboard-level timing decisions. This alignment confirms that humour outcomes are not arbitrary, but are influenced by measurable and manageable pre-production variables. As such, the study moves beyond descriptive humour theory to establish an evidence-based foundation for managing gag comedy systematically.

In conclusion, this study demonstrates that managing gag-based comedy through AI-assisted pre-production planning is both empirically justified and industry-relevant. By aligning creative intent, audience insight, and production realities, the proposed approach enables animation studios to enhance comedic effectiveness, improve efficiency, and uphold creative integrity. This positions AI not as a disruptive force in animation, but as a supportive infrastructure for more sustainable, informed, and artist-centered cartoon series production.

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Validating Displacement Map Quality in Generative Methods − A SSIM-Centered Analysis

Zihao Zhou[1], Hyunseok Lee[2]

M.A. Student, Department of Design (Major of Animation), Pusan National University, S. Korea[1]
Professor, Department of Design (Major of Animation), Pusan National University, S. Korea[2]

Abstract

Displacement maps are essential for representing fine-scale surface geometry in digital content production, yet conventional generation workflows are highly time-consuming and labor-intensive. This study proposes an AI-based displacement map generation method using the FLUX.1 Kontext diffusion model with Low-Rank Adaptation (LoRA) fine-tuning. A paired dataset of texture images and corresponding displacement maps was constructed for training, and the model's performance was evaluated using the Structural Similarity Index Measure (SSIM). Experimental results show that the generated displacement maps achieve SSIM values ranging from 0.750 to 0.905, with an average of approximately 0.804, indicating strong structural and perceptual similarity to ground truth maps. Qualitative analysis further confirms that the proposed method preserves realistic geometric relief, shading transitions, and surface continuity. Compared to traditional sculpting and baking workflows, this approach significantly reduces production time while maintaining consistent quality. The results demonstrate the practical applicability of LoRA-enhanced diffusion models for efficient displacement map generation in digital content pipelines.

Key Words: Displacement map Generation, Diffusion Model, LoRA Fine-Tuning, SSIM, Digital Content Production

1. Research Background

Displacement maps represent fine-scale surface microgeometry through actual geometric offsets and parallax effects, playing a critical role in digital content production. Unlike normal maps, which only simulate lighting variations, displacement maps directly modify the underlying mesh surface, resulting in physically accurate relief, occlusion, and shading. However, current workflows for generating displacement maps—such as 3D scanning, digital sculpting, and baking—are highly pipeline-intensive and demand considerable time and manual effort. Recent advances in generative diffusion models trained on large-scale datasets have shown exceptional capability in learning intricate textural details and structural regularities. Leveraging these strengths, generative AI provides a promising alternative for efficient displacement map generation. By exploiting the image synthesis and structural representation capabilities of diffusion models, displacement maps can be generated with high fidelity while substantially reducing production time and labor.

2. Research Objectives and Methods

This study employs the FLUX.1 Kontext diffusion model, integrated with LoRA fine-tuning, to generate displacement maps efficiently. Developed by Black Forest Labs, FLUX.1 Kontext is an advanced model for image generation and editing that accepts both textual and visual inputs as contextual conditions. With approximately twelve billion parameters, the model supports joint conditioning on images and text, enabling flexible synthesis and modification of visual content in response to reference images or textual prompts. A total of ninety-one paired training samples were compiled, each consisting of a texture image and its corresponding displacement map. To evaluate performance, five representative pairs from the training set were selected for quantitative analysis using the Structural Similarity Index Measure. Proposed by Wang et al., SSIM assesses perceptual similarity by jointly considering luminance, contrast, and structural information between two images.

3. Objective Evaluation

3.1 SSIM Analysis

To objectively evaluate the degree of similarity between AI-generated displacement maps and high-fidelity ground truth maps, the SSIM was employed. SSIM values range from 0 to 1, with higher values indicating greater structural and perceptual similarity. By calculating SSIM between each generated map and its corresponding reference, we quantitatively assess the model's ability to preserve texture structure.

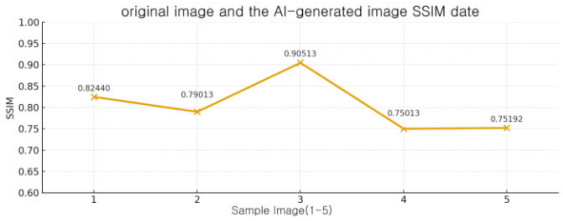


Fig 1. The SSIM between the original image and the AI-generated image.

Table 1 presents the SSIM values between the original and AI-generated displacement maps. To assess generalization capability, five image pairs were evaluated. Each pair consisted of a reference texture, its ground truth displacement map, and the AI-generated displacement map. All images were rendered at a resolution of 1024×1024 pixels to ensure consistency. The SSIM values ranged from 0.750 to 0.905, yielding an average of approximately 0.804. Higher SSIM values reflect greater similarity in luminance, textural fidelity, and structural coherence, suggesting that the generated maps successfully reproduce the structural characteristics of the reference maps. Minor variations were observed among samples, primarily due to subtle discrepancies in fine details, with the lowest SSIM recorded at approximately 0.750. These results indicate that the LoRA-enhanced diffusion model demonstrates notable generalization ability across diverse material styles.

A qualitative inspection of geometric relief, shading transitions, and surface continuity at close range further supports the quantitative findings. For most samples, the rendered close-ups exhibit realistic relief and natural illumination transitions, closely resembling real captures. The mean SSIM of 0.804 thus validates the effectiveness and practical applicability of the proposed approach in reconstructing fine-scale displacement structures.

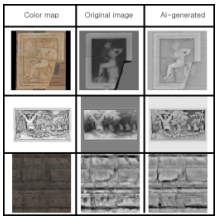


Fig 2. Compares the original, AI-generated, and corresponding reference images.

The LoRA fine-tuned diffusion model directly infers geometric details from input images, enabling a one-click workflow for displacement map creation. This approach substantially streamlines production: the trained model can generate a high-resolution displacement map within minutes, compared to the hours or days typically required for manual sculpting and baking. Furthermore, since the LoRA module can be reused across materials of similar characteristics, the trained model facilitates batch generation of displacement maps with consistent style and quality.

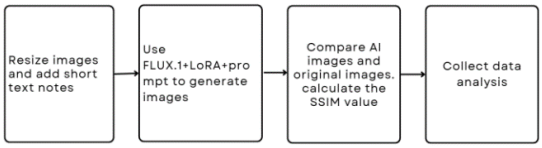


Fig 3. illustrates the SSIM analysis workflow.

3.2 Method Advantages

Compared to conventional workflows for displacement map generation, the proposed AI-based generative approach offers substantial advantages in efficiency and process simplicity. Traditional methods typically rely on professional tools such as Substance Painter or Quixel Mixer, involving manual high-polygon sculpting, material parameter tuning, and iterative baking. This process is not only time-consuming but also demands extensive manual labor for each new asset, making it difficult to maintain stylistic and quality consistency across multiple assets. In contrast, the diffusion-based approach eliminates the need for repetitive manual operations, automatically generating high-quality displacement maps that retain structural fidelity and stylistic coherence. The result is a scalable, automated solution that integrates seamlessly into digital content pipelines.

4. Conclusion

The integration of diffusion models with LoRA fine-tuning offers an efficient and practical approach to displacement map generation. This method produces high-quality grayscale maps without retraining large-scale base models, providing a cost-effective and time-saving solution for digital content creation in film, gaming, and visual effects. Experimental results show that the generated maps achieve strong structural consistency with handcrafted references, with a mean SSIM of about 0.804. The rendered outputs also display realistic relief and shading, confirming the method's reliability and suitability for professional production workflows.

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Emotional Engagement as Visual Dialogue on Digital Platform Study Case in @MilkCafe Instagram Account

Evan Raditya Pratomo[1], Hutomo Setia Budi[2], Petra Cleopatra[3], Jessica Ethelind[4], Joan Nathania[5], Alexander Bagaskara[6]

Lecturer, Department of Visual Communication Design, Universitas Ciputra Surabaya, Indonesia [1,2]

Department of Visual Communication Design, Universitas Ciputra Surabaya, Indonesia [3,4,5,6]

Abstract

Social media has evolved beyond a platform for information sharing into a space for emotional expression and interaction between designers and audiences. This study explores how the illustration account @milkcafe.co creates emotional engagement through soft visual design, positive messaging, and warm digital interactions. Using a descriptive qualitative approach, this research analyzes visual strategies, communication tone, and audience responses to the content posted. The findings indicate that the use of pastel colors, cute character designs, and warm communication styles helps foster a sense of emotional safety and comfort, particularly among Generation Z audiences. The resulting digital interactions between designer and audience are grounded in emotional attachment built through feelings of security and acceptance. This study contributes to a deeper understanding of the role of design psychology in building empathetic relationships between creators and audiences on social media.

Key Words: Communication Style, Design Psychology, Emotional Engagement, Empathetic Design, Social Media

1. Introduction

The digital era began in the early 1990s with the emergence of personal computers, the internet, and interconnected communication devices (Castells, 2011). In the 2000s, social media platforms such as Facebook and Instagram transformed human interaction into two-way, community-based communication (Boyd & Ellison, 2007). These developments significantly altered how designers engage with audiences, positioning social media as a primary space for building relationships and direct engagement. One of them is Instagram accounts centered on mental health awareness and positive living, @milkcafe.co.



Fig 1. Logo and mascot from @milkcafe.co Instagram account.

2. Research Objectives and Benefits

This study aims to analyze how soft visual elements, particularly pastel color palettes and cute character designs, alongside warm interaction styles used by @milkcafe.co contribute to emotional engagement with its audience on social media. The focus lies on understanding how visual and verbal design elements create feelings of safety, comfort, and emotional closeness, ultimately strengthening digital interaction between designer and audience.

@milkcafe.co Instagram content demonstrates that design now functions as an empathetic and even therapeutic medium rather than merely a visual aesthetic. Through soft visual styles and emotionally resonant messages, design can foster feelings of safety and emotional connection in digital spaces. Despite this phenomenon, studies focusing on emotional relationships between designers and audiences from a design psychology perspective remain limited. Therefore, this research asks: how do @milkcafe.co as a designer and its audience collaboratively form emotional engagement on social media?

The findings are expected to provide insights into the application of design principles that emphasize empathy and human-centered values. This research may serve as a reference for designers seeking to create work that is not only aesthetically pleasing but also emotionally supportive, highlighting the potential of design as a medium for emotional comfort and positive digital experiences.

3. Methodology

This study employs a descriptive qualitative research method (Creswell, 2014) by analyzing the visual content and digital interactions found in 12 recent Instagram posts from @milkcafe.co. This approach allows for an in-depth

understanding of how design elements contribute to emotional engagement rather than merely measuring popularity through quantitative metrics.

The object of research is the Instagram account @milkcafe.co, with a focus on posts conveying messages related to mental health awareness and positivity. Data were collected through visual observation: examining color choices and character design and interaction analysis by reviewing comments and engagement to interpret audience emotional responses. Supporting tools included Instagram analytics, Canva, and Adobe Illustrator for visual mapping of analysis results.

4. Analysis and Findings

Social media platforms such as Instagram function as interactive spaces for visual communication and emotional exchange. The @milkcafe.co account stands out for its ability to translate visual elements into emotional language that resonates with followers. Generation Z audiences are particularly drawn to content perceived as warm and authentic. Pastel colors evoke calmness, cute animal characters encourage empathy, and positive copywriting reinforces feelings of safety and emotional closeness. This combination humanizes the content and allows it to be emotionally accessible to young audiences.

5. Discussion

5.1 Implications for Design Practice

The findings reinforce the idea that visual design holds psychological power in shaping audience emotional experiences. Designers like @milkcafe.co act as facilitators of empathy and social support rather than merely visual creators.

The @milkcafe.co account consistently uses pastel tones such as soft peach/pink, cream, light blue, pale yellow, light brown, and white. These colors create a gentle, calming, and comforting brand identity. Each color conveys specific psychological meanings, including warmth, safety, optimism, and simplicity, collectively contributing to emotional comfort and reduced visual stress.

Cute-style characters with soft expressions and rounded proportions function as empathetic visual elements. Cute visuals stimulate positive emotional responses and empathy. In this context, characters act as emotional representatives of the brand, enhancing authenticity and emotional closeness.



Fig 2. @milkcafe.co Instagram account content.

5.2 Emotional Attachment of the Audience

Copywriting plays a crucial role in fostering emotional interaction through personal language, friendly tone, and expressive elements such as emojis. Warm replies, audience mentions, and emotional tone matching make audiences feel seen and valued, encouraging sustained engagement and two-way communication.

The integration of soft visuals, cute characters, and personal copywriting creates a warm and approachable brand image. Aesthetic elements that evoke positive emotions strengthen emotional bonds. This strategy is particularly effective for Generation Z, who value authenticity and emotional resonance.

Social media transforms designers into active communicators. Through features such as comments, highlights, and audience-generated content, @milkcafe.co demonstrates co-creation practices where audiences participate in shaping emotional dialogue and brand meaning.

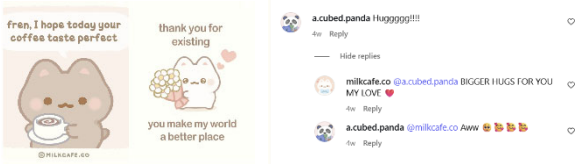


Fig 3. @milkcafe.co content with copywriting(a) audience engagement with comment and likes(b).

6. Conclusion

This study concludes that the power of design extends beyond aesthetics into the realm of emotional relationship building. The case of @milkcafe.co illustrates that pastel colors, cute characters, and warm communication styles effectively foster emotional safety and closeness in digital environments. These findings underscore the significance of design psychology in contemporary practice, positioning design as a medium that fosters empathetic connections and supports positive emotional experiences. Future studies are encouraged to explore similar phenomena across other social media platforms.

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Production and Aesthetic Shaping of Digital Art in the Digital Age

Zhao Wenjiang[1]

Professor, Digital Visual Media Contents(Digital Media Art), Communication University of Shanxi, China[1]

Abstract

In the digital age, artificial intelligence generation technologies like ChatGPT have sparked a wave of generative AI. Artificial intelligence generation technologies have had a significant impact on the production and aesthetic shaping mechanisms of digital art. From the perspective of the relationship between digital technology and digital art, digital generation technology continually expands the boundaries of digital art, infusing it with new vitality and development momentum. Digital art is also continually enhancing digital technology, driving its advancement, and mutually learning from and co-constructing it. This technological expansion has brought about transformations in the art ecosystem, making the production of digital art increasingly convenient and efficient. The subsequent affirmation of art, on one hand, eliminated the aesthetic "Aura" of classical art, while on the other hand, it brought about new changes in the experiential and interactive aspects of aesthetics. People should have a fresh understanding of digital art and develop new aesthetic values.

Key Words: Digital art; digital generation technology; artistic production and aesthetics

1. Introduction

Since the 20th century, two powerful forces have driven transformations in artistic forms: one in ideas and the other in tools, particularly in iterative and intelligent scientific and technological advancements derived from computer technology. Digital art flourished and flourished under the continuous exploration of computer hardware upgrades and digital technology. Digital art is a form of art that blends art and technology, involving the full or partial use of digital technology in its creation or presentation. It can take the form of text, symbols, sound, video, installation, or any other tangible or intangible form. It has always exhibited open and interactive qualities alongside the growth of technology. In other words, it is a unity of poetry and numbers, emptiness and reality, time and emptiness.

Digital generation technology primarily refers to "media's digital generation techniques, including the digitization of text, sound, color, images, videos, and graphics." Its technological core is algorithmic optimization based on language models. Digital technology has evolved into generative artificial intelligence (AIGC), spanning from text, image, to video processing. Its core includes algorithms, image synthesis techniques, modeling, rendering, animation, physical simulation, virtual reality, augmented reality, and other technologies. With the continuous advancement of computing power equipment, digital processing technologies for text, images, audio, and video have been enhanced.

From early photographic synthesis to today's Deep Convolutional Generative Dversarial Networks (DCGAN), deep algorithmic structures continue to evolve, bringing about qualitative changes in AI-generated content such as making images more realistic, music more dynamic, or text more human-centric. From early polygon modeling to real-time light tracking rendering, 3D modeling and rendering techniques have made images and videos clearer and more realistic; animation, physical simulation, virtual reality, and augmented reality technologies have made interactive digital content more immersive. Artificial intelligence generation technology is widely applied in multiple fields such as images, music, videos, and installations, making human-computer interaction more convenient and precise, and easier to capture people's thoughts and inspirations. This has improved the efficiency of content production while also bringing about aesthetic social utility, making it a widely accepted form of digital art.

2. The Technological Evolution of Digital Art

2.1 Technology transforms the creation, dissemination, and reception of digital art

Digital art essentially involves technological intervention in the creation, dissemination, and reception of art. In the history of art development, changes, development, and innovation have always been closely linked to the advancement of materials, technology, and ideas, especially since the industrial era, when technology or new ideas directly or indirectly influenced the production and development of art. Artificial intelligence generation technology is an iterative product of a language pattern supported by technology. After training on large text datasets, it can produce complex, human-like works

that mimic human language patterns. Among these, generative adversarial network (GAN) technology is a common tool used in digital art, enabling the public to quickly obtain generated AI works through text-driven image generation. This generative work can create digital art pieces that interact with the audience using algorithms. These works can respond to the audience's words and actions, creating more personalized experiences. To some extent, generative artificial intelligence will deeply integrate into the future realm of art, powerfully driving the expansion of digital art creation and dissemination. Artificial intelligence generation technologies can enable more people to participate in artistic creation. AI tools can enable people to quickly generate artistic works, lower the barriers to participation, and thereby promote art equality. It compresses the production process of human-created content, alters the patterns of artistic appreciation, and transforms artistic production and aesthetic shaping.



Fig 1. Interactive art

2.2 Code creation and cross-sector collaboration

By writing code, artists can leverage the image processing capabilities of computers and algorithmic analysis to generate unique artworks. They can generate various forms of work, including abstract patterns, dynamic animations, interactive installations, and virtual reality, directly using 0s and 1s without needing brushes, notes, or text. Code has become a creative tool, and the applications of digital art are expanding. Users or artists can control and adjust the details of their works through code, thereby achieving more precise and accurate creative effects. At the same time, they can easily modify the code to generate different versions of their works, enabling rapid iteration and innovation. Digital technology has not only transformed art production but also diversified the identities of producers—whether artists, painters, sculptors, computer experts, programmers, or the general public—making human-computer collaboration extremely easy under the integration of artificial intelligence generation technologies. Digital technology enriches people's life experiences and opens up a broader aesthetic realm for digital art. The openness of digital art has enabled collaboration across fields such as fashion, music, and architecture, transforming its styles and changing traditional aesthetic standards. Its interactivity is reflected in the interaction between humans and computers, where computers use graphics, commands, and human interactions to create and disseminate "what you see is what you get" in digital art creation and dissemination; and in digital art works between authors and audiences. This interaction is not limited to between the author and the audience; it also involves interactions between the audience. Traditional artistic works convey aesthetic value through the author infusing the work with the concepts they wish to express. The audience's aesthetic needs are infinitely close to the author's ideas to understand the aesthetic implications conveyed by the work. In digital art works, the author and audience are open, allowing them to participate or become part of the work. Generative AI also encourages digital artists or users to experiment and explore new technologies and media, thereby exhibiting a strong experimental and creative aesthetic.

3. The Technical Dilemmas of Digital Art

3.1 Limitations in Creation and Technology

The creation of artistic works requires three major processes: artistic experience, artistic conception, and artistic communication. In the pre-industrial era, creating art could take a long time to learn, and the creation of an artwork often required accumulation of knowledge and professional skills, emotional investment, inspiration, and rich life experiences. Artworks took a long time to complete. For the general public, creating artistic works is challenging due to a lack of professional skills. But today, with the rise of industrial technology, artistic works have become popular in the "age of replication." The rise of artificial intelligence has increasingly made the production and consumption of art more accessible to the masses.

3.2 The issue of copyright and artistic distortion

Additionally, in the digital age, data has become a crucial production factor. The main difference between generative AI and analytical AI is that it can reorganize internet data to generate new, rather than directly copying, which is known as "composite innovation." This generative AI provides production factors for digital production activities by generating synthetic data. So the copyright ownership of this new synthetic digital art work becomes a new issue. The production efficiency of digital art pieces has improved, forming a stark contrast with the long-term "precision" concept of fast-food digital art products compared to traditional art pieces. In 2022, a painting titled "Space Opera" won the first prize in digital art at the Colorado Art Fair, with a production process of 80 hours and 900 images refined using Photoshop

software. Its "authenticity" "right now" has become a focal point of public opinion alongside the suprasensory nature of AI creation, with some viewers affirming its value and others questioning its artistic merit, making this painting a milestone for AIGC. Art appreciation encompasses psychological activities such as the viewer's perception, experience, understanding, imagination, and recreation. Digital art reduces the cost of experiencing art appreciation. From a consumption perspective, large-scale art production devalues certain arts, shortens the distance between artistic aesthetic expectations, and helps elevate public aesthetics by elevating art from a higher vantage point.



Fig 2. Théâtre D'opéra Spatial, 2022

4. Conclusion

Korean Art once entered human life as a tool of witchcraft, religion, and imperial power, gradually projecting social images such as theocracy and hierarchies into artistic works, imbuing them with the "AURA" effect and imbuing them with worship value.In the era of mechanical replication, the intervention of technology has overturned this worship value. Artistic originals continue to be copied and enter the public eye, losing their sanctity and giving rise to display value. In the digital age, the display value of art has been supplanted by experiential value, especially as online experiences have made digital art interactive and opened up technological avenues for production and consumption. The transformation brought about by this technological expansion is particularly challenging. Digital technology is a new tool for artistic creation, with its artistic practices shifting from the real to the virtual, or leveraging tools to make creations more refined, rich, complex, and convenient, yet filled with algorithmic imaginations beyond human memory. Currently, digital generation technologies are continually evolving and their advantages are being amplified, but we should also be wary of the intelligent control brought by algorithms.

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On the Interweaving of Modernity Ecological Ethics and Post-human Civilization from the Film “Frankenstein , 2025”

Cao Yijun[1]

Lecturer, Department of Film Studies (Major of Film), Zhongnan University of Economics and Law, China[1]

Abstract

Frankenstein, as a seminal work in science fiction literature, profoundly explores the intricate relationship between technology and humanity, revealing characteristics of modernity. This paper examines the film “Frankenstein, 2025” through the lenses of modernity, ecological ethics, and post-human civilization, analyzing its underlying warnings and reflections. By dissecting technological power, moral responsibilities, and human identity, it exposes the ethical dilemmas and ecological crises confronting humanity in its pursuit of technological advancement.

Key Words: Modernity, Ecological ethic, Post-human civilization

1. Ecological Ethics and Post-human Civilization

In modern society, technology has become an extension of power, profoundly influencing human identity and moral values. The post-human concept, an interdisciplinary scientific framework emerging in the late 20th century, fundamentally challenges traditional humanism's anthropocentric worldview. It advocates redefining human-nonhuman relationships through technological, ecological, and philosophical perspectives. With advancements in genetic engineering and artificial intelligence, post-human theory explores themes like human-machine symbiosis and trans-species ethics, proposing new forms of subjects such as cyborgs and digital life. While technological progress reshapes human physical forms and cognitive abilities, it also raises profound questions about the meaning of human existence. Within modernity theory, the relationship between technology and human dominance remains a central issue. As we enter the post-human era, technological progress presents new challenges to human identity and self-identity. The question of whether people can maintain self-awareness and responsibility in a digital world has become a crucial cultural and societal issue.

Within this framework, sustainability transcends mere choice—it has become a fundamental principle governing human existence. The relationship between humanity and technology grows increasingly complex, where technology evolves from a mere tool into a pivotal force shaping human emotions and identity. This emotional erosion and alienation are particularly evident in “Frankenstein”. The dynamic between humans and their creations mirrors humanity's existential confusion and contemplation. Through technological advancement and transformation, post-human civilization may cultivate greater diversity, ultimately redefining the very essence of human existence.

2. Analysis Process and Results

From the perspective of modernity, ecological ethics and post-human civilization, this paper analyzes “Frankenstein, 2025” by examining the power of technology, moral responsibility and human identity.

Table 1. The following three aspects correspond to the film "Frankenstein, 2025"

Analysis element	“Frankenstein, 2025”
Modernity and Responsibility	While pursuing scientific breakthroughs, scientist Victor gradually realized the catastrophic consequences of technological development without ethical and ethical support.
Reflection of Ecological Crisis	The world set in the story is full of the glory of science and technology, followed by the ecological crisis and the Frankenstein experiment.
Posthuman and Self-Recognition	The monster and other characters reflect on human identity, which is not only the continuation of Frankenstein's monster identity, but also the identity crisis of human beings in the face of scientific and technological progress.

3. The Ecological Ethics and Post-human Civilization in “Frankenstein, 2025” from the Perspective of Modernity

In "Frankenstein, 2025", the story unfolds in a highly advanced future society where rapid technological and scientific progress has made the digital uploading of individual consciousness a reality. Frankenstein attempts to recreate life once more, but unlike the original novel, the film delves deeper into ethical considerations. As the

protagonist pursues scientific breakthroughs, he gradually realizes the catastrophic consequences of technology developed without ethical and social responsibility. This narrative directly reflects the dual nature of modernity's technological advancement: while driving civilizational progress, it may also lead to humanity's self-destruction.

From a modernity perspective, the relationship between technology and humanity has always been a central theme in science fiction. Regardless of how sci-fi writers interpret the dominance between technology and humans, their coexistence inevitably conceals profound crisis awareness. Technological progress brings both social prosperity and a series of ethical dilemmas. Frankenstein, as Mary Shelley's science fiction novel, not only showcases aspirations for modern civilization but also warns against technological abuse, serving as a microcosm of the tension between modern technology and ethics. The modernity it portrays encompasses both yearning for civilizational development and critical critique.

The monster in the screen adaptation “Frankenstein, 2025”, is tall and male, stitched together from corpse fragments, created by scientists to possess life and self-repair capabilities for immortality. Its persistent suffering and loneliness from early to later stages mirror the ego's continuous struggle between the id and superego. This is not merely a product of scientific experimentation but also a symbol of technological-ethical imbalance. Its existence challenges humanity's boundaries between technology and nature, highlighting the necessity for humans to bear the consequences and responsibilities brought by technology.



Fig 1. The process of the experiment and the monster's rebirth

Victor Frankenstein, as a creator, attempted to achieve human dominance over nature through science, but his evasion of responsibility triggered a moral and ethical crisis. This dual aspect of modernity is reflected in the success and failure of Frankenstein's experiments, as well as the subsequent rebellion of the monster against humanity.

The film's narrative centers on Frankenstein's groundbreaking experiments, examining humanity's ethical and moral responsibilities in an era of technological advancement. Contemporary ecological crises—industrial pollution and genetic engineering risks—echo the novel's Frankenstein experiments, underscoring the imperative for sustainable development. The failed experiments highlight how technological overreach threatens ecosystems, calling for deeper ecological accountability. Through nuanced storytelling, the film illustrates the dynamic between technology and nature, revealing how unbridled scientific exploration can devastate ecosystems. In this light, the film serves as a cautionary tale about humanity's potential to exceed the carrying capacity of ecosystems.

The concept of posthumanity emerges prominently in the film. Digital uploading signifies not merely the continuation of individual existence, but a fundamental redefinition of humanity. Characters embody profound reflections on human identity – extending beyond Frankenstein's monster archetype to reveal humanity's existential crisis in technological progress. Posthuman civilization may achieve greater diversity through technological evolution, fundamentally reshaping human morphology. As digital technology advances, the uploading of individual consciousness and the concept of digital immortality are becoming increasingly realistic, complicating ethical debates. By positioning the "monster" as an adversary to mainstream culture, Frankenstein exposes the deep-seated contradictions and conflicts within contemporary society. Frankenstein's monster represents both the consequences of uncontrolled scientific experimentation and a critique of societal ethics and power structures.

4. Conclusion

The film explores the intricate relationship between the Creator and His creations, revealing humanity's profound longing and fear toward their own maker. In this context, Frankenstein, 2025 transcends being merely a cautionary tale about science and ethics—it serves as a profound reflection on modernity, ecological ethics, and post-human civilization. It exposes the stark tension between humanity's pursuit of technological advancement and its moral obligations. As future technologies rapidly evolve and ethical dilemmas deepen, society must re-examine the relationship between science and humanity, guiding technological development through ethical principles. Only by doing so can we find a sustainable way of life within the boundaries of post-human civilization. Yet, when humans attempt to reshape themselves through technology, the question of whether we can maintain respect for and concern with human nature remains an urgent challenge to address.

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Design of Zhaojun IP Image Based on Emotional Design Theory.

HanZhe[1], Jiang Haitao[2]

Lecturer, Department of Digital Art Industry Institute, Hubei University of Technology, China[1]
Lecturer, Department of Animation, Zhongnan University of Economics and Law, China[2]

Abstract

Against the backdrop of the rapid development of the cultural and creative industries and digital media, the IP transformation of historical and cultural figures has become an important topic in contemporary visual art and design research. As a historical female figure with high symbolic significance in traditional Chinese culture, Wang Zhaojun's visual representation has long remained at the level of stylization and symbolization, making it difficult to effectively respond to the emotional needs of contemporary audiences. This paper introduces Norman's emotional design theory and systematically analyzes the emotional value construction path of Zhaojun's cultural image in contemporary IP design from the three dimensions of the instinctive layer, behavioral layer, and reflective layer. Through the sorting out of Zhaojun's historical image, artistic image, and existing IP image, the design principles of Zhaojun's IP image based on emotional design are proposed. Combined with specific design practices, in-depth discussions are conducted on its shape, color, clothing, and expression system. The research holds that the emotional design theory provides an effective method for the contemporary expression of traditional cultural IP images, which is conducive to achieving the visual translation and emotional resonance of historical and cultural spirit, and has certain theoretical and practical significance for contemporary cultural IP design and visual art creation.

Key Words: Emotional design; the image of Wang Zhaojun; cultural IP; image design; visual communication

1. Introduction

In recent years, as China's national strategy for cultural confidence has continued to advance, the contemporary transformation and innovative expression of traditional cultural resources have become important research directions in the fields of art and design. Historical figures, as important carriers of Chinese traditional culture, frequently appear in cultural and creative products, digital media, public art, and visual communication, and gradually participate in contemporary cultural production through “cultural IP.” However, in actual design and dissemination, many historical figures' IP images suffer from issues such as aesthetic homogenization, limited emotional expression, and superficial cultural connotations, making it difficult to establish stable and lasting public recognition.

Wang Zhaojun, one of the most representative female figures in Chinese history, is continually reshaped in literature, art, and folk art through his multiple narratives of “harmony with family,” “national sentiment,” and “personal destiny.” But in the context of contemporary visual design, Zhaojun's image often remains confined to the recreation of traditional ladies' paintings or stage designs, lacking a systematic emotional design logic that makes it difficult to form deep emotional connections with contemporary audiences. Therefore, how to activate the emotional value of Zhaojun's image through design methods while respecting historical and cultural spirit has become a worthy topic for in-depth exploration.

This article explores the emotional expression pathways of Zhaojun's cultural image in contemporary IP design using emotional design theory as a starting point. The main research objectives lie in three aspects: first, exploring the applicability and methodological value of emotional design in cultural IP image design; second, constructing an IP image with emotional depth and cultural depth through systematic analysis; third, providing a model for contemporary translation of traditional historical figures. In terms of research, this paper not only helps expand the application of emotional design theory in art and visual culture, enriching the theoretical study of cultural IP design; it also provides new visual insights for the innovative expression of Zhaojun's cultural image, making it practically relevant.

This study focuses on the “Zhaojun IP Image,” with a particular emphasis on design issues at the visual identity level. The research scope primarily includes the cultural connotations of Zhaojun's historical images, visual presentations in traditional art, and image reconstruction in the context of contemporary IP design, without involving studies on Zhaojun's literary themes or analysis of film and television texts. The discussion at the design level centers on visual elements such as character styling, color, clothing, and expressions, emphasizing the

integration of emotional expression with cultural connotations.

2. Overview of Emotional Design Theory

2.1 The Origin and Development of Emotional Design Theory

Emotional design, one of the important theories in design research, stems from the design discipline's ongoing focus on "user experience" and "emotional value" since the late 20th century. Traditional design theory often emphasizes principles of functional and formal beauty, but as consumer culture and media environments evolve, design objects gradually expand from mere practical objects to cultural symbols, emotional carriers, and meaning-building systems. In this context, design is no longer just about "how to use" but has shifted to the levels of "how to feel" and "how to identify."

American cognitive psychologist Donald Norman, in his book Emotional Design, systematically highlights the central role of emotions in designing experiences, noting that human judgment of objects is not entirely rational but is instead heavily influenced by emotions, memories, and cultural experiences. This theory transcends functionalist design philosophy, viewing emotions as an important component of design value and having a profound impact on visual communication, product design, interaction design, and even cultural image shaping.

In contemporary design research, emotional design has gradually been introduced into the field of cultural product and IP image studies, becoming an important theoretical tool for connecting visual forms with cultural significance. Especially among representatives of traditional cultural resources, emotional design offers new avenues for reimagining historical images.

2.2 Analysis of Norman's Three-Level Theory of Emotional Design

2.2.1 Instinctive Layer Emotions and Visual Perception

The instinctive layer is the most direct and rapid emotional response level in humans, primarily based on sensory stimuli. In visual design, instinctive layers of emotion are often realized through proportions, color coordination, material texture, and overall style. Whether an image is "beautiful," "affordable," or "attractive" often makes an initial judgment at this level.

For cultural IP images, instinctive emotional layers determine whether the audience is willing to pay further attention to this image. In the design of Zhaojun's IP image at the instinctive level, it not only needs to possess contemporary aesthetic language but also avoid rigid historical re-imagining in terms of style and demeanor. Through gentle lines, rhythmic proportions, and emotional hues, it creates a close first impression.

2.2.2 Behavioral layer emotions and usage experience

Behavioral layer emotions arise from interactions between people and design objects, emphasizing "smooth use" and "comfortable experience." In traditional product design, this level is often associated with functional operations; in IP image design, behavioral emotions are more evident in the flexibility, interactivity, and contextual adaptability of the image.

The portrayal of Zhaojun's IP image in various media and application scenarios, such as cultural and creative products, digital emojis, animated characters, or exhibition displays, requires good visual variability and emotional expression skills. Through systematic emoji design, action settings, and scenario-based applications, Zhaojun's image can gradually establish a stable emotional connection through repeated use, fostering familiarity and trust among the audience during interactions.

2.2.3 Reflective Layer Emotions and Cultural Identity

The reflective layer is the deepest part of emotional experiences, involving value judgments, cultural significance, and identity. This layer of emotion often emerges gradually after use or viewing, closely related to an individual's cultural background, historical memory, and social cognition.

In Zhaojun's IP image design, the construction of reflective layer emotions is particularly crucial. Zhaojun is not only a historical figure but also carries multiple cultural connotations including "national sentiment," "cultural exchange," and "female destiny." By integrating symbolic design, narrative visual elements, and cultural metaphors, Zhaojun's IP image can transcend superficial aesthetics, evoking viewers' reflections on traditional cultural spirit, thereby achieving dual goals of emotional resonance and cultural identity.

2.3 The application value of emotional design in cultural IP and image design

In today's cultural context, IP imagery has become an important carrier for visual cultural dissemination, with its value not only reflected at the commercial level but also in the production and dissemination of cultural significance. Emotional design theory provides a design logic centered around "emotion" for cultural IP images, transforming them from static symbols into perceivable, understandable, and recognizable cultural subjects. For Zhaojun's historical and cultural image, the introduction of emotional design helps break free from the limitations of traditional representation models, transforming historical narratives into contemporary visual experiences. Through multi-layered emotional design, Zhaojun's IP image can establish an emotional bridge with contemporary audiences while maintaining cultural seriousness, thereby effectively promoting traditional culture in the modern

context.

3. Analysis of Zhaojun's Cultural Image and Contemporary IP Context

Wang Zhaojun was one of the highly symbolic female figures in Chinese history, with her image first recorded in historical texts and continually reshaped in subsequent literary, theatrical, and artistic works. In historical narratives, Zhao Jun is often placed within the vast historical context of "harmony and reconciliation," serving both as an executor of political strategies and a bearer of personal destiny. This dual historical identity naturally imbues Zhaojun's image with emotional tension and cultural depth.

In the context of traditional Chinese culture, Zhaojun was gradually endowed with symbolic meanings such as "sacrifice for the country," "marriage to a foreign land," and "cultural communicator." His personal emotions were integrated into the narrative of his homeland and country, forming a cultural image that combines tragic elements with noble spirits. This multifaceted cultural connotation provides rich spiritual resources for the diverse presentation of Zhaojun's image in visual arts.

3.1 The visual presentation of Zhaojun's image in traditional art

The image of Wang Zhaojun exhibits a relatively fixed visual paradigm within traditional Chinese painting, murals, and folk art. Across various historical periods, depictions of Zhaojun have primarily followed the conventions of "court lady paintings," emphasizing her dignified posture, gentle demeanor, and reserved emotional expression. These portrayals are often complemented by elements such as frontier landscapes and the contrast between Han and nomadic attire, thereby reinforcing the narrative backdrop of her "marriage to a distant land."

In traditional Chinese opera and folk arts, the portrayal of Wang Zhaojun has become further stylized through costume colors, headdress designs, and performance conventions, forming highly recognizable visual symbols. While this stylized expression reinforces cultural memory, it also, to some extent, limits the emotional depth of the character, often reducing Zhaojun to the level of a "symbolic female figure."

3.2 The Current State of Diffusion and Existing Issues of the Contemporary Wang Zhaojun IP Image

In the contemporary era, the image of Wang Zhaojun has gradually been introduced into cultural and creative design, urban image-building, and digital media dissemination, demonstrating a trend of IP-oriented development. However, based on existing cases, many Wang Zhaojun IP designs still rely on traditional court lady aesthetics and historical costume elements, lacking a response to contemporary visual contexts and the emotional needs of modern audiences.

Specifically, on the one hand, some designs excessively pursue historical "authenticity," resulting in a disconnect between the image and contemporary aesthetics. On the other hand, there is also a tendency to simplistically caricature or trivialize the image of Wang Zhaojun, thereby diminishing its cultural depth and spiritual significance. This polarization reflects an imbalance in the emotional positioning and cultural expression of Wang Zhaojun IP design.

3.4 Analysis of Zhaojun IP's Emotional Value and Audience Needs

From an emotional perspective, the core value of Zhaojun's IP image lies not in the historical events themselves, but in the emotional experiences and cultural identities they carry. Contemporary audiences seek both visual affinity and novelty when facing historical and cultural IPs, and they also crave genuine and empathetic emotions behind the images.

The emotional themes such as "farewell," "resilience," and "cultural fusion" embedded in Zhaojun's image share commonalities across generations. By transforming these emotions into perceivable visual language through emotional design methods, Zhaojun's IP image can help reestablish an emotional value system in contemporary contexts, shifting from a "viewed historical symbol" to a "emotional cultural image."

4. Zhaojun's IP Image Design Philosophy

The design of the Wang Zhaojun IP image takes "emotional evocation" as its core objective, following a creative process that moves from cultural research to visual translation. Firstly, by examining the historical image of Wang Zhaojun and related artistic works, its core cultural imagery and emotional themes are distilled. Secondly, informed by emotional design theory, the emotional needs of the target audience are analyzed to clarify the overall character and emotional positioning of the image. Finally, abstract cultural emotions are transformed into specific visual language, resulting in a systematic IP image design proposal.

This creative process emphasizes the synergistic relationship between research and design, ensuring that the visual development of the image is based on cultural understanding and emotional experience rather than merely becoming a formalistic decoration.

4.1 Character Design: Anatomy, Proportion and Silhouette Analysis

In character design, Zhaojun's IP image adopts a moderate proportional structure to balance historical temperament with contemporary aesthetic needs. The overall proportion weakens realistic details, emphasizing the rhythm of the body and clothing lines, resulting in a gentle yet powerful visual characteristic.

The design of the head-to-body ratio focuses on the function of emotional expression. The head proportion is appropriately enlarged to enhance the readability of facial expressions, while maintaining a dignified and stable body posture to avoid excessive exaggeration that would diminish the historical temperament. Through posture designs such as standing poses and looking back, the image of Wang Zhaojun subtly conveys emotional dynamics in a static state, reflecting her reserved yet complex psychological condition.

4.2 Research on Color Systems and Emotional Symbols

Color serves as an important medium for emotional expression in the Wang Zhaojun IP image. For this design, the color palette primarily employs low-saturation hues, complemented by warm-cool contrasts, to create an overall atmosphere that is tranquil, restrained, and tinged with a sense of melancholy. The dominant color tones are largely derived from traditional painting and costume palettes, such as shades of cyan, dark blue-gray, and off-white, in order to resonate with the historical and cultural context of Wang Zhaojun's image.

At the level of emotional symbolism, cool color tones are used to express Wang Zhaojun’s loneliness and resilience as she left her homeland, while localized warm color accents symbolize cultural exchange and emotional connection. This approach creates a dynamic tension and balance in the character’s emotional expression. Such a color strategy helps convey the multifaceted emotional dimensions of Wang Zhaojun's image on a visual level.

4.3 The integration of clothing patterns and regional cultural elements

The costume design for the Wang Zhaojun IP image preserves the fundamental features of historical attire while incorporating contemporary adaptations. By summarizing and refining the structure of Han dynasty clothing and integrating elements of frontier regional culture, the costumes serve as a visual medium that bridges the cultures of the Central Plains and foreign lands.

The pattern design presents traditional motifs in a geometric and abstract manner, avoiding the excessive complexity associated with overly realistic depictions. By exercising restraint in the layering of garments and decorative details, viewers are able to grasp the meaning of cultural integration within the overall image, rather than being distracted by intricate specifics.

4.4 Facial Expression System and Dynamic Application of the Wang Zhaojun IP

To enhance the application value of the Wang Zhaojun IP image in contemporary media, a comprehensive facial expression and motion system has been constructed. The facial expression design is centered around emotions such as "contemplation," "fortitude," and "gentleness," achieved through subtle variations in the eyes, eyebrows, and mouth, forming a continuous emotional spectrum.

In terms of dynamic expansion, the Wang Zhaojun IP image can adapt to the demands of digital media and interactive scenarios through slight movements and changes in posture. Such dynamic design not only increases the usage frequency of the image but also enhances its approachability and vitality in behavioral-level emotional experiences.

5. Conclusion

This paper adopts the theoretical framework of emotional design to examine the visual translation and emotional construction of Wang Zhaojun—a historical figure with profound cultural significance—within the contemporary context of IP development. Through a systematic review of emotional design theory and an analysis of the historical evolution and current dissemination of the cultural image of Wang Zhaojun, this paper argues that the design of IP images based on traditional historical figures should not be limited to formal replication or symbolic representation but should engage in deeper construction at the levels of emotional depth and cultural meaning.

Research indicates that the framework of emotional experience proposed by Norman—encompassing the visceral, behavioral, and reflective levels—provides clear methodological support for the design of the Wang Zhaojun IP image. At the visceral level, design elements such as form, color, and visual rhythm establish an approachable yet reserved first impression of the figure. At the behavioral level, the systematic and extensible nature of the image enhances its interactive experience in contemporary media. At the reflective level, the integration of cultural symbols and spiritual meaning elevates the Wang Zhaojun IP image beyond mere visual decoration, transforming it into a visual subject that carries cultural identity and historical reflection.

The emotional communication effects of the Wang Zhaojun IP image are primarily based on theoretical analysis and design reasoning, lacking systematic empirical research and audience survey data for support. Furthermore, the design practices discussed in this paper remain largely conceptual, with their practical application across media and long-term dissemination effects requiring further observation and validation.

Future research could, while maintaining a humanities and art history perspective, introduce interdisciplinary approaches to conduct more detailed studies on the emotional reception mechanisms of cultural IP images. This would enrich the practical dimensions of emotional design theory within the field of cultural visual studies.

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A study of lack of warmth children's behavior in order to reflect family issues through 2D animation

Chalisa Thongrueangsuksai[1], Wisit Supangkaratana[2]

B.A. Student, Media Arts Program (Major of Animation), King Mongkut's University of Technology Thonburi, Thailand[1]

Lecturer, Media Arts Program (Major of Animation), King Mongkut's University of Technology Thonburi, Thailand[2]

Abstract

Family is a first and very important part for a child's growth. They teach the basic skills, help overcome difficulties, and make the child feel safe. A child with proper raising and having their parents as a comfort zone generally has a good mental foundation and is able to encounter struggles outside well. However, in the present time, there are many children who lack interaction with their family, whether from any cause and condition, which can affect the children both physically and mentally. This research is mainly focusing on studying children's behavior and mangrove forest environment in order to interpret for making story structure, environment design, character design etc. and communicate into the form of 2D short animation for the reason of being approachable media which aim to create an impact on parents to have a quality time with their family.

Key Words: Family, Child, Comfort Zone, Animation

1. Introduction

A family has to provide basic needs for their child such as safety, food, home, and the most important thing love. These things are the strong crucial roots for a child because with these factors, the child will have a higher chance in becoming an adult with a good and proper life. However, lots of children both in the past and nowadays have to face family issues which can cause big changes for the children and interrupt their learning and development.

This study starts with searching for many articles and papers that are relevant to a cause of lack of warmth in children and synthesizing them into 2D animation.

2. Information

2.1 Neglected children

Neglected children means the absence of parental care and interaction for children which can possibly affect them in having both physical and mental problems. According to the article "Child neglect and emotional abuse" (medlinesplus.gov), it is hard to prove that a child faces this kind of abuse while emotional abuse has a high possibility of happening to the child, and this kind of abuse also happens when the child is being physically or sexually abused.

2.2 Dysfunctional Family

This kind of family is the family that has unhealthy patterns in every or a member of the family. If a child was raised in a dysfunctional family, there is a possibility that the child is going to be neglected or having other problems that will affect the child's living. According to the article "What Causes Family Dysfunction?" (liberationhealingseattle.com), there are lots of causes for dysfunctional families such as 1. Poverty and Financial Instability, 2. Neglect, 3. Violence and Abuse etc.

3. Method

3.1 Story Structure

The Hero's Journey or Monomyth is the structure that is widely used in storytelling. According to the article "The Hero's Journey: 12 Steps to a Classic Story Structure" (Dario Villirilli), Hero's Journey mainly focus on the growth of the main character by separating into 12 steps in order to see how the beginning and the ending of the story and how the main character has changed. In the process of creating the story for the project, the mentioned information about neglected children will be added in this process such as creating the moment that is challenging for the main character which is based on the situation that neglected children encounter.

3.2 Environment Design

The main location that is used as a reference in environment design is The Rak Thale Bangkhunthain Bridge. This place is where the last mangrove forest in Bangkok is located. Speaking of mangrove trees, the information about them has a connection between their benefits and what families have to provide for their child such as safety, food and home just like how mangrove

trees benefit many living things. For example, mangrove trees' roots are the shelter for small marine life to survive before fully grown and get out to live in a wider place or the sea. This point shows that there is a potential in using this as a concept in making a media that reflects the problem of "with no roots for the children' growth, it is going to be harder for them."



Fig 1. Picture of some part in the area near The Rak Thale Bangkhunthain Bridge

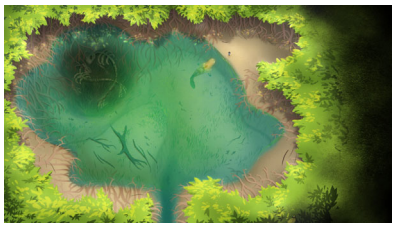


Fig 2. Environment Design mangrove swamp

3.3 Character Design

In this process, the main characters' habits are designed based on possible behavior in lack of warmth and basic needs towards children such as having low self-esteem, feeling alone or on the other hand, being too much active to be the center of everyone.



Fig 3. Unda, The lonely child, Character Design

Fig. 3. is the character design of human child, Unda, which is designed to emphasize a lonesome feeling of a child who has very little interaction with her parents, and fig.4 is the character that represents the uniqueness of mangrove forest by adding some animal appearances in the forest.



Fig 4. Tientien, the lonely creature, Character Design

3.4 Storyboard

In animation, Storyboarding is very important because it will bring the sequence into pictures and let the creator arrange it in a proper way that suits the story style, and it can also drive the story into the heart of the audience and make them understand the message easily.

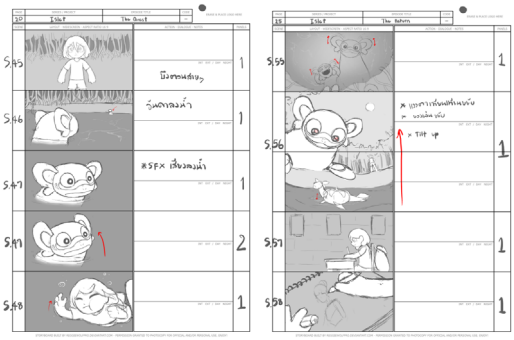


Fig. 5. some of the storyboard pages

4. Conclusion

The study of children with lack of warmth in order to use it in the process of pre-production in making 2D animation which aims to reflect the problem in a family to parents and encourage people to face the problem and have a quality time with their family.

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A Study and Design of a Sex Education Storybook for Children Aged 5–8 Years through Paper Craft Technique

Chompoonik Pakdee[1] Patcharee Panyangnoi[2]

B.A. Student, Media Arts Program, King Mongkut's University of Technology Thonburi, Thailand[1]

Lecturer, Media Arts Program, King Mongkut's University of Technology Thonburi, Thailand[2]

Abstract

This research is a qualitative study combined with creative art practice that aims to design a sexuality education picture book for children aged 5-8 years using paper craft techniques. Data are collected from relevant literature, experts, and the target group and analyzed qualitatively to inform design strategies, followed by experimental design and prototype production, including illustrations, content, paper craft techniques, and a dummy book. The prototype is evaluated by experts in child development, children's literature, and children's illustration, as well as by the target group, with the expected outcome being an accessible and engaging picture book that supports early learning, promotes body rights, and encourages acceptance of differences and gender diversity.

Key Words: Storybook Design , Sex Education, Paper Craft

1. Introduction

Sex education is vital for helping young people understand sexuality and make informed decisions, preventing issues like unintended pregnancy, STIs, and sexual violence. In Thailand, cultural views often limit young learners' access to this education, contributing to problems such as adolescent pregnancy, which remains high, with 21 million girls aged 15 to 19 becoming unintentionally pregnant each year in low- and middle-income countries. (UNESCO, 2019). International guidance recommends introducing age-appropriate sexuality education from around five years old, emphasizing that for young children, the focus is not on sex but on understanding the body, recognizing emotions, building healthy relationships, learning consent, and knowing how to respond to violence or bullying. Research shows that comprehensive sexuality education equips children and adolescents with essential knowledge and skills, promotes respectful relationships, and leads to positive long-term health outcomes. (WHO, 2023).

Given the limited sexuality education resources for young children in Thailand, this project aims to create an accessible picture book that introduces basic sexuality education and body rights. Utilizing papercraft techniques, the book is designed to support early learning, help children understand personal boundaries, and encourage parents to participate in discussions about safety and well-being. This effort directly addresses the need to equip young children with essential knowledge and skills for their safety and future health.

2. Sexuality education in the context of Thai society

1.Human Development

2.Relationships

3.Personal Skills

4.Sexual Health

5.Society and Culture that influence Thai Sexuality education and values (Jukkrit, 2024)

3. Principles of Writing Children's Books

1. Writers should take children's developmental traits into account, including their sense of novelty, limited experiences, present-focused thinking, strong emotions, self-centred viewpoints, and gradually emerging emotional complexity.

2. Identify the intended audience clearly. Picture books typically have thirty-two pages, though this varies by age group (Paul, 2009).

•Ages 4–8: 600–1,000 words

•Ages 5–8 (early readers): up to 2,000 words

3. A clear theme and focused narrative are essential. Each story should also be expressible in a single guiding sentence.

4. The child protagonist should drive the story by making decisions and solving problems. Young readers also tend to connect with characters their age or slightly older (Alexander, 2023). Character development can be supported by defining the name, age, appearance, relationships, and personality traits.

5. Picture books should encourage imagination while

remaining grounded in children's real-life experiences and growing independence. (Paul, 2009)

6. Since children's books aim primarily to entertain, overly instructional tones should be avoided. Any moral message should arise naturally from the narrative, with optional supplementary material provided at the end.

7. Apply "show, don't tell," using actions and emotions rather than explanation, and avoid repeating what the illustrations already convey.

8. Begin with an engaging opening, such as a pivotal moment, an unusual situation, conflict, or dialogue.

9. End with a clear and satisfying resolution, ensuring all narrative threads are concluded and, where appropriate, leaving the reader with a sense of delight. (Alexander, 2023)

4. Paper Craft and Pop-up Techniques

Table 1. Paper Craft and Pop-up Techniques table

Paper Craft Techniques	Pop-up Techniques
Origami or Paper Folding (Yamba, *2020*)	*1.*Multiple layers
Paper Cutting (Yamba, 2020)	2.Floating layers (Hiner, 1985, p. 8)
Card Making (Ohio *4*-H, n.d.)	3.V-fold - A V-shaped structure generates strong upward motion. (PaperPaul, 2021)
	4.Magic box
	5.Moving arm
	6.Rotating disc
	7.Sliding motion
	8.Pull-up planes
	9.Pivoting motion
	10.Dissolving scenes (Hiner, 1985, p. 20)

5. Result

From a survey of 153 parents in Thailand who have children aged 5–8 years, the findings can be summarized as follows:

1. The respondents included 99 females (64.7%) and 54 males (35.3%) with the following age distribution:

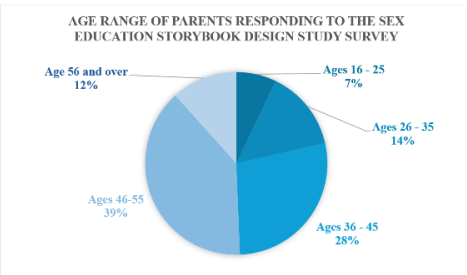


Fig 1. Age Range of Parents Responding to the Sex Education Storybook Design Study Survey

2. The respondents selected the following storybook styles:

- Lily the Pond Mermaid by Lucy Fleming (British Children's Books) 120 votes（Cartoonish Styles + Fantasy Illustration Styles）

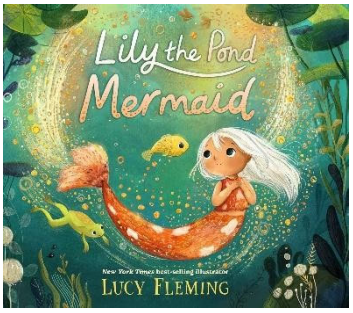


Fig 2. Lily the Pond Mermaid by Lucy Fleming

- もふちゃん (Mofu-chan) by serico (Japanese Children's Books) 117 votes（Fantasy Illustration Styles + Watercolor Medium）



Fig 3. もふちゃん (Mofu-chan) by serico

- ผ่อนคลาย（Relax) by Pattreeda Prasarnthong (Thai Children's Books) 91 votes（Stylized and Exaggerated Illustration Styles + Digital Painting Medium）



Fig. 4.ผ่อนคลาย (Relax) by Pattreeda Prasarnthong

6. Project Outline

1. The children's book project contains two books, each with 32 pages. (Topics: Body, Mind, Gender Diversity)

2. Characteristics of children's book project

- Cartoonish Styles + Stylized and Exaggerated Illustration Style
- Mood and Tone : Friendly/Enjoyable/ Amusing

7. Sketch Design



Fig 5. Alternative Color Scheme Sketches

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Story-Based Digital Humans as a Form of Cultural Communication Practice: The Role of Narrative and Character

Huiying Zhou[1], Hyunseok Lee[2]

M.A. Student, Department of Design (Major of Animation), Pusan National University, S. Korea[1]
Professor, Department of Design (Major of Animation), Pusan National University, S. Korea[2]

Abstract

In recent years, short-video platforms have evolved from entertainment-oriented spaces into key arenas for cultural production and dissemination. Unlike conventional forms of cultural communication that prioritize information transmission, story-based digital humans transform cultural content into an experiential process through stable character construction and serialized narrative expression. Drawing on narrative theory and character-based media theory, this study examines the communication mechanisms of story-based digital humans in cultural communication contexts. Taking the cultural story-based digital human Tianyu on Douyin as a case study, the paper analyzes how cultural meanings are conveyed through a stable character identity and continuous narrative development. The findings suggest that this form of digital human practice constitutes a mode of cultural communication centered on character and narrative.

Key Words: story-based digital humans, narrative theory, character construction, short-video platforms

1. Introduction

With the development of short-video platforms, these platforms have shifted from spaces primarily aggregating entertainment content to important arenas for the production and dissemination of cultural content. Culturally themed content is increasingly produced and consumed in more everyday and contextualized forms. Within this context, digital humans have moved beyond their early roles centered on technological demonstration or functional applications, participating instead in ongoing content creation through account-based operations and emerging as new content production agents. Among them, story-based digital humans centered on virtual characters have become increasingly active on short-video platforms. Through serialized narratives and stable character identities, they participate in the presentation and dissemination of cultural content, forming a communication phenomenon worthy of scholarly attention. Against this backdrop, this study conceptualizes cultural story-based digital humans as an emerging form of cultural communication practice. Rather than viewing them as technological applications, content genres, or isolated cases, the paper focuses on their overarching characteristics at the level of communication logic. It examines how cultural content is transformed into experiential, intelligible, and emotionally received processes through sustained, character-centered, and narrative-driven content production. By analyzing this practice, the study aims to clarify the rationale behind the emergence of cultural story-based digital humans and their significance in contemporary cultural communication. Accordingly, it raises two core questions: why does cultural content in digital media environments need to be told as stories, and why can characters function as key mediating agents in cultural communication?

2. Theoretical Foundations

2.1 Narrative Theory: Why Culture Needs to Be Told as Stories

Narrative is not merely a form of expression, but a fundamental mode through which humans understand the world and construct meaning. It organizes fragmented events, symbols, and values into coherent structures with causal and emotional orientation, transforming them into experiences that can be understood and remembered. Because cultural content is often abstract and symbolic, it is difficult for audiences to absorb when presented solely as information or knowledge. By embedding culture within concrete situations, character actions, and emotional development, narrative renders cultural meaning perceptible and experiential. In fragmented media environments such as short-video platforms, narrative's capacity for contextual coherence and meaning integration makes it particularly suited to cultural communication.

2.2 Character and Media Theory: Characters as Key Mediating Agents of Cultural Communication

In narrative communication, characters function not as decorative elements subordinate to plot, but as mediating

forms that organize and convey meaning. Through relatively stable identities, perspectives, and emotional positions, characters provide cognitive anchors that enable audiences to perceive abstract information and values in contextualized ways. In cultural communication, meaning is often constructed not directly from cultural symbols, but through attention to characters' actions, attitudes, and narrative trajectories. Within digital media environments, the continuity and stable viewpoints offered by characters further strengthen their mediating role, allowing cultural meaning to be carried and extended across continuously updated content.

3. Analysis of Cultural Communication Practices of Story-Based Digital Humans: The Case of Tianyu

3.1 Sustained Character Construction: The Stable Carrier of Cultural Meaning

The capacity of story-based digital humans to function as agents of cultural communication lies primarily in their sustained, character-centered mode of construction. Unlike traditional animated characters embedded within a single textual work, story-based digital humans are anchored to platform-based accounts, through which they maintain relatively stable character identities, value positions, and emotional dispositions across continuously updated content. Taking the cultural story-based digital human Tianyu on the Douyin platform as an example, its digital persona is not fully constituted within a single video, but gradually emerges through the ongoing release of short-form content. This cross-textual stability allows audiences to perceive cultural content as part of a continuous "character experience" rather than as isolated pieces of information or knowledge.

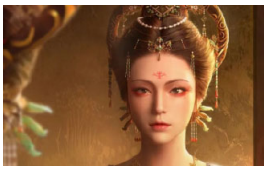


Fig 1. Tianyu

3.2 Story-Based Narrative: Transforming Culture from Information into Experience

Building on stable character construction, story-based narrative further shapes how cultural content is presented and interpreted. Rather than prioritizing the transmission of knowledge, story-based digital humans embed cultural elements within characters' actions, emotions, and situational contexts. Narrative thus functions not merely as a representational device, but as the primary means through which cultural meaning is experienced and understood. In Tianyu's content practices, cultural elements are not delivered through explanatory or instructional formats, but unfold organically through the character's experiences. Audiences' engagement with culture is therefore oriented toward the character's emotions, choices, and narrative trajectory, shifting cultural communication from being "told" to being "experienced" and enhancing emotional involvement and meaning internalization.

3.2 The Distinctiveness of Story-Based Digital Humans as a Form of Cultural Communication Practice

From the perspective of communication practice, story-based digital humans differ from both traditional animated characters and virtual influencers. While the cultural meanings of animated characters tend to stabilize once a work is completed, and virtual influencers focus on authenticity, interaction, and personal branding, story-based digital humans center on fictional characters and continuous narrative production. Through the integration of character and story within platform environments, cultural content becomes a process that unfolds through sustained experience. The case of Tianyu thus represents not an isolated phenomenon, but the typical characteristics of cultural story-based digital humans as an emerging form of cultural communication practice.

4. Conclusion

Drawing on narrative theory and character-based media theory, this study examines the communication mechanisms of cultural story-based digital humans on short-video platforms. The findings indicate that cultural content is told as stories not merely as an expressive strategy, but because narrative transforms culture into an experience. As the core mediating elements of narrative, characters enable cultural meaning to be stably carried and accumulated through continuous content production. The case of Tianyu further shows that story-based digital humans are neither extensions of traditional animated characters nor virtual influencers, but constitute a distinct form of cultural communication practice centered on the integration of character and narrative. Through this integration, culture is perceived as experience rather than transmitted solely as information. This study contributes to understanding transformations in cultural communication within digital media environments and offers a theoretical reference for future research on story-based digital humans and virtual characters.

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Quantifying the Authenticity Gap: A Computer Vision Approach to Managing Style Drift in AI-Generated Digital Heritage

Zhengjun Lu[1], Hyunseok Lee[2]

Ph.D. Candidate, Department of Design (Major of Animation), Pusan National University, S. Korea[1]
Professor, Department of Design (Major of Animation), Pusan National University, S. Korea[2]

Abstract

This study addresses the authenticity crisis in AI-generated cultural heritage by establishing a quantitative framework using Dunhuang murals as a case study. We constructed a paired dataset of 120 images (60 authentic vs. 60 AI-generated) and employed CLIP embeddings, K-means clustering, and morphological metrics. Results reveal systemic style isolation: 98.3% of authentic murals clustered within a unified Authentic Domain, while AI samples were systematically excluded (chi-square=112.16, p<0.001). Three critical deviations were identified: (1) 136% color saturation inflation; (2) 2.6-fold symmetry increase; (3) 45% iconographic error rate. We characterize AI outputs as High-Fidelity Cultural Simulacra and identify three pseudo-paradigms: Hyper-decorative (66.7%), Modern-illustration (31.7%), and Symbolic-collage (1.7%).

Key Words: Generative AI, Cultural Heritage, Authenticity, Dunhuang Murals, CLIP, Style Drift

1. Introduction

The integration of generative AI into cultural heritage digitization presents a paradox: while enhancing accessibility, it risks creating cultural simulacra that distort historical memory. Recent advances in multimodal pretrained models enable extraction of visual-semantic information from traditional artworks, providing a foundation for understanding traditional aesthetics quantitatively. Despite growing concerns, research that quantitatively compares style distributions between traditional and AI samples in high-dimensional feature space remains limited.

This study establishes a mathematical framework to define a Style Baseline using Dunhuang murals, a UNESCO World Heritage site representing 1,600 years of Buddhist art, as a test case. We address three research questions: (1) Can traditional murals form a cohesive Authentic Domain in feature space? (2) How do AI samples deviate in direction and magnitude? (3) What cultural meanings are lost through AI generation?

2. Methodology

We constructed a balanced dataset of 120 images (1024x1024): 60 authentic samples from Dunhuang Research Institute digital archives and 60 AI-generated samples (DALL-E 5) across three categories: Character, Environment, and Pattern (20 each). Traditional samples were selected with clearly visible mineral pigments (azurite, malachite, cinnabar) and well-preserved historical textures.

Multi-dimensional features combined: (1) CLIP ViT-B/32 embeddings (512-D semantic vectors); (2) Fractal dimension for textural complexity; (3) Symmetry index for compositional balance; (4) Color statistics including saturation. K-means clustering (K=3) identified style groupings after PCA dimensionality reduction (38 components, >95% variance). Chi-square tests with Cramer's V validated distribution differences.

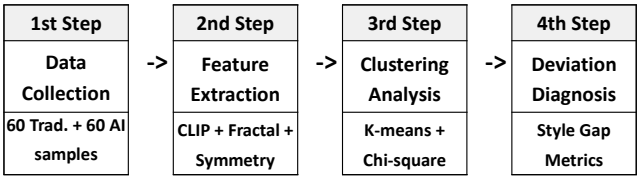


Fig 1. Research methodology flowchart

3. Key Findings

3.1 Systemic Style Isolation

Clustering revealed 59/60 traditional samples (98.3%) converged into Cluster 2, the Authentic Domain, transcending thematic categories. This finding challenges the categorical assumption that Character, Environment, and Pattern should be distinguishable at deep visual-grammar levels; instead, they share highly isomorphic style genes. This cross-topic homogeneity stems from three dimensions: (1) Material unity from mineral pigments (azurite, malachite, cinnabar) producing consistent spectral reflectance; (2) Technical standardization with strict iconographic protocols and brushwork techniques; (3) Spiritual resonance following the aesthetic principle of qiyun shengdong. AI samples distributed across Clusters 0-1, with only 1.7% entering the Authentic Domain. Chi-square test confirmed significant differences (chi-square=112.16, p<0.001, Cramer's V=0.967).

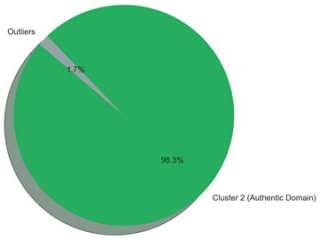


Fig 2. Style isolation: Traditional samples cluster dominance (98.3%) vs. AI exclusion

3.2 Three-Dimensional Style Drift

(1) Physical Distortion: AI showed 123.8 mean saturation vs. 52.4 traditional (+136%). Traditional low saturation is an accumulated historical outcome: lead white oxidizes and darkens, cinnabar dulls, plant dyes fade. These chemical changes collectively denoise originally vivid murals into dignified gray tones, forming a unique history spectrum. AI misinterprets this as brighter colors, preserving the signifier while severing the relationship with material medium. (2) Morphological Rigidity: AI symmetry reached 0.245 vs. 0.093 traditional (2.6x increase). Traditional murals display organic asymmetry from artists' bodily interventions: wrist force changes, wall undulations, brush-tip moisture variations. AI constructs absolute order via geometric operations, essentially copy-and-paste of motif sets. (3) Semantic Hollowing: 45% mudra error rate with anatomically impossible configurations. AI replicates visual forms but severs cultural meanings including dharma transmission and ritual protocols.

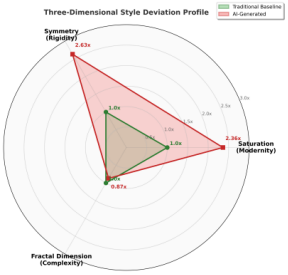


Fig 3. Deviation profile: saturation inflation, symmetry rigidity, and complexity loss

Table 1. Quantitative Comparison of Style Dimensions

Dimension	Trad.	AI	Deviation
Saturation	52.4	123.8	+136%
Symmetry	0.093	0.245	2.6x
Fractal Dim.	1.816	1.572	-13%
Mudra Error	0%	45%	--

3.3 Typology of Pseudo-Dunhuang Paradigms

Typological analysis of 60 AI samples identified three dominant pseudo-paradigms. Type I: Hyper-decorative (66.7%), covering motif-centered themes with pixel-level identical geometric units resembling Ctrl+C workflow; such suffocating perfection paradoxically constitutes a death sentence for artistic vitality. Type II: Modern-illustration (31.7%), featuring cel-shaded flat coloring with enforced one-point perspective, imposing Western spatial logic on Eastern scattered-perspective compositions due to training on modern book illustrations. Type III: Symbolic-collage (1.7%), exhibiting structural figure errors, truncated instrument anatomy, and influencer-face aesthetic from modern training data contamination, corresponding to free-spinning signifiers where forms remain but meanings are absent.

4. Discussion and Implications

This study proposes the first Authentic-Domain-based quantitative evaluation paradigm, redefining style as a computable mathematical entity with definable boundaries. We identify a knowledge-hallucination mechanism in generative AI: the failure originates not from performance deficiency but from overconfident reconstruction. The model systematically corrects ancient aesthetics according to mainstream modern internet visual logic (high saturation, perfect symmetry, influencer aesthetics) rather than faithfully replicating historical artistic grammar. We characterize current AI outputs as High-Fidelity Cultural Simulacra: pixel-level persuasive but culturally hollow.

For heritage management, considering AI's inherent limitations at the cultural understanding level, we propose: (1) Tiered access-control mechanisms with mandatory AI content labeling in high-trust contexts such as artifact restoration and academic exhibitions; (2) Human-in-the-loop creation model where AI serves as inspiration expander with expert validation for cultural verification and style calibration; (3) Integration of structured cultural knowledge graphs as hard constraints beyond pixel-level statistical rules. Limitations include dataset scale (120 images) and single-model focus. Future research should compare architectures (Stable Diffusion, Midjourney), explore fine-tuning methods (LoRA, ControlNet), and extend to other heritage traditions (Chinese ink painting, Japanese ukiyo-e).

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A Study on the Identification and Fandom Formation of Virtual Idols : Philosophical Analysis of the Meaning of 'Red Pill' in PLAVE Fandom

Yejin Hong[1], Hyunseok Lee[2]

M.A. Student, Department of Design(Major of Animation), Pusan National University, S. Korea[1]
Professor, Department of Design(Major of Animation), Pusan National University, S. Korea[2]

Abstract

With the rapid development of digital technology, 'Virtual Idols' are emerging as new subjects in the entertainment industry. This study uses the virtual group 'PLAVE' as a case study to explore the identity recognition of virtual idols and the mechanism of fandom formation through the unique 'Red Pill' discourse formed within the fandom. Here, the 'Red Pill' refers to real-life information about the actual performer (the "body") existing behind the avatar, and verifying this is considered a taboo within the fandom. Based on Jean Baudrillard's theory of simulacra and discussions on post-human subjectivity, the analysis confirms that the fans' rejection of the 'Red Pill' is not mere escapism, but an active and ethical strategy to protect the idol's 'Hyperreality' narrative. This study suggests that this phenomenon is redefining the concept of 'authenticity' in the digital age.

Key Words: Virtual Idol, PLAVE, Red pill, Simulacra, Fandom culture

1. Introduction

The development of digital technology and the spread of non-face-to-face culture have introduced a new subject called 'Virtual Idol' to the entertainment industry. The 5-member virtual group 'PLAVE', which debuted in 2023, proved the potential of this market by achieving results comparable to real-life idols, such as 200,000 copies in first-week sales and ranking first on terrestrial music broadcasts.

PLAVE operates by having actual humans (the "bodies") wear motion capture equipment and act out characters in real-time; in this process, a unique discourse has formed within the fandom. This is the 'Red Pill' discourse, which borrows the metaphor from the movie The Matrix. In this study, 'Red Pill' refers to information that breaks the virtual narrative of the virtual idol and forces one to face the personal details or past reality of the 'body' (actual performer) behind the character. This study aims to philosophically examine the new Subjectivity in the digital age and the concept of Authenticity in a society of Simulation by analyzing how this 'Red Pill' is accepted, excluded, or managed within the PLAVE fandom.

2. Theoretical Background

2.1 Simulacra and Hyperreality

According to Jean Baudrillard's theory, modern society is a world dominated by 'Simulacra', which are copies without originals. Although PLAVE is a non-existent virtuality implemented with 2D/3D graphics, it grants fans reality. This can be seen as a typical example of simulation where the virtual created by media replaces the real.

PLAVE is based on the motion capture of actual humans, but visually, it is expressed as a completely different existence. In this process, fans recognize the "presence of the original (the body)" but actually interact with the "character, which is a Hyperreal (surreal image)". An interesting point is that fans do not reject this 'surreality' but actively accept it. This suggests that, unlike traditional media consumption, the virtual idol fandom has formed a "new sensibility in the age of simulation".

2.2 Post-human Subjectivity and Double Bind

PLAVE's identity takes on Post-human characteristics, formed by the combination of technology (character) and human (body). As discussed by Braidotti, this deconstructs the human-centered hierarchy and forms a new subjectivity where machine and organism are hybridized.

Fans consume a state where the character's perfect appearance (virtual) and the body's human mistakes or voice (real) are mixed; amidst these two contradictory layers, they experience a unique identity recognition where they treat the character and the body's identities as if they coincide completely.

According to a study by Song et al. (2024), virtual idol fandoms possess characteristics of social identity (sociality, selectivity, plurality) and are dynamically reconstructed during the interaction process of online fan groups. Unlike the static identity structure of existing K-pop fandoms, this shows

a unique 'externality of identity' due to virtual characteristics. In other words, the PLAVE fandom's identity is not a fixed substance that does not change over time, but has a dynamic structure that is continuously reconstructed within the process of continuous interaction and meaning negotiation among fans.

Table 1. Stages of Simulation in PLAVE Case

Stage	Stage Name	Characteristics	PLAVE Case
Stage 1	Representation	The image reflects a deep reality and is similar to the real.	Basic appearance setting and portraits of the characters.
Stage 2	Distortion	The image masks and perverts reality.	Construction of a surreal worldview (mythological background settings).
Stage 3	Masquerade	Pure image masking the absence of reality (no referent).	Simulation of daily conversation through Bubble and Live broadcasts.
Stage 4	Hyperreality	Functions as an independent existence unrelated to the original.	PLAVE's autonomous subjectivity within the fans' perception.

3. Analysis of the Meaning of 'Red Pill' in Fandom

Just as Neo chose the red pill in the movie The Matrix to face the painful truth, the act of 'eating the Red Pill' (digging into the information of the performer) in the virtual idol fandom is considered an 'uncomfortable truth' that shatters the virtual fantasy. This phenomenon can be seen as a form of pro-wrestling's 'Kayfabe' (a performative norm of believing it is true while knowing it is fiction) transplanted into digital fandom; fans collectively perform 'Strategic Ignorance' where they intentionally exclude the existence of the performer for the sake of the worldview's completeness, despite being aware of it (dual cognition).

Research results show that the PLAVE fandom established this not merely as a realm of curiosity but as an ethical Taboo. "Not trying to know the performer," or "pretending not to know even if you do," operates as 'manners' to protect the worldview and as an implicit rule. Although not an official rule, it operates as an implicit norm. Weverse's official usage regulations also specify a "prohibition on mentioning the artist's personal information and private life," and posts violating this are deleted without notice or accounts are sanctioned.



Fig 1. (Left)The 'Red Medicine' and 'Blue Medicine' of the Matrix movie, (Right)Announcement of the use of 'Plave' Weverse

The 'Red Pill' transforms from a simple behavioral rule into a moral ethical system. Fans interpret "not trying to know the performer" not just as a custom of fan culture, but as "ethics respecting the character," "an attitude acknowledging the efforts of VLAST (the production company)," and "proof of a true fan".

In traditional epistemology, 'truth' was a value to be pursued, but in the PLAVE fandom's 'Red Pill' discourse, this value is inverted. Fans actively choose the 'Blue Pill (comfortable lie/fantasy/virtual worldview)'. This is not an escape from reality, but a part of an 'emotional contract' formed between fans and idols to maintain the playful space of 'virtuality (character)'. Fans do not deny the existence of the performer but pretend not to know the reality of the performer to respect PLAVE as a character.

What is interesting about the PLAVE fandom's rejection of the 'Red Pill' is that fans are by no means unaware of the fact that "a performer exists". VLAST discloses PLAVE's production methods quite transparently. Real-time motion capture technology, the existence of actors, and the company's technical capabilities are all handled publicly. Nevertheless, fans choose to "know this information but not use it as a basis for approaching the character". This demonstrates not a traditional sense of escapism, but a new attitude of perception in the era of hyperreality.

4. Authenticity in the Age of Simulation

4.1 Attitudes of Virtual Idol Consumers and Recognition of New Authenticity Recent empirical studies on virtual idol consumers reveal interesting patterns.

According to a study by Hwang Seo-yi & Ki Chan (2023), viewers of virtual idol performances form emotional bonds equivalent to those with real celebrities, going beyond simple technology-based entertainment. The analysis of 470 survey respondents in this study proved that the characteristics of virtual idols (attractiveness, similarity, commerciality) induce 'flow' in viewers, and flow is directly linked to performance satisfaction and intention to re-watch.

A particularly important finding is that flow acts as a powerful mediator. That is, it means that the visual attractiveness or commerciality of the virtual idol does not directly increase satisfaction, but the "emotional presence" experienced by the viewer in a state of "complete immersion" is the most important. Similarly, through PLAVE, it was confirmed that the attitude of consumers consuming virtuality in the digital age has fundamentally changed.

4.2 The Birth of New Authenticity

The PLAVE phenomenon suggests that the concept of 'authenticity' is being redefined. If the public in the past was passively deceived by fantasies provided by media or tried to critically expose them, in the PLAVE fandom, this relationship is transforming into a form of mutual agreement based on transparency.

Fans know the existence of the performer but perceive it as "part of the character service". This is a form of critical immersion not seen in existing fandom studies. They take a playful attitude of 'actively defending and enjoying the fantasy while knowing it is a fantasy'.

Authenticity in the era of virtual idols depends on 'how faithfully one immerses in the agreed-upon virtuality'. In other words, the effort to reject the Red Pill and protect the world of the Blue Pill is not Deception, but a practice of truthfulness in a new form adapted to the digital environment.

5. Conclusion

This study presents an answer to the fundamental question of what authenticity is in the age of simulation. In existing philosophy and media studies, authenticity has always been identified with "originality," "lack of falsehood," and "transparency". However, the case of the PLAVE fandom shows that trusting while knowing it is false is a new form of authenticity.

Through the meaning of the 'Red Pill' in the PLAVE fandom, the debate on subjectivity and reality in the digital age was explored. The study results revealed that the fandom accepts the hyperreality where technology and humans are combined, and constructs a unique mechanism that sustains the virtual narrative by deferring 'knowing the truth (the performer)'.

This shows that beyond the virtual idol industry, it acknowledges virtuality and grants it reality, changing the philosophical attitude toward human modes of existence and truth. Future research needs to analyze the impact these fandom norms will have on the formation of legal and ethical guidelines for the overall virtual human industry.

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Emotional Engagement as Visual Dialogue on Digital Platform Study Case in @JoyfulOdyssey Instagram Account

Hutomo Setia Budi[1], Evan Raditya Pratomo[2], She Angelica[3], Felicia Melvina Denatalia[4], Auryn Yeira Sumango[5], Alexandra Kannitha Michi[6]

Lecturer, Department of Visual Communication Design, Universitas Ciputra Surabaya, Indonesia [1,2]

Department of Visual Communication Design, Universitas Ciputra Surabaya, Indonesia [3,4,5,6]

Abstract

In the digital era, the intersection of art and technology has become increasingly important in exploring the human condition, particularly in relation to mental health issues. This study examines the Joyful Odyssey project, a positive movement that integrates immersive digital art with mental health narratives on social media. The main focus of this research is to explore how the use of 3D visual technology in Joyful Odyssey content captures audience attention and successfully creates emotional connections, ultimately turning the platform into a shared storytelling space for its viewers. Using a qualitative descriptive approach, this study analyzes 3D elements such as texture, color, lighting, layout, and decorative details that function not only as aesthetic attractions but also as tools for fostering empathy among audiences from diverse backgrounds. The findings highlight that the transformation of technology through art can serve as an effective bridge of empathy, encouraging meaningful action and increasing mental health awareness in Indonesia's digital era.

Key Words: Audience Engagement, Digital Art, Mental Health, Social Psychology, Technology

1. Introduction

The digital era today faces significant challenges related to mental health, where the constant flood of information often triggers anxiety and social isolation. Within this context, digital art emerges not only as a form of entertainment or visual beauty, but also as a powerful medium of communication. Joyful Odyssey is a narrative-driven digital art project specifically designed to raise mental health awareness through immersive visual experiences on social media. Rather than relying on rigid or emotionally forceful approaches, Joyful Odyssey adopts a warm artistic approach to create a "safe and comforting space" for its audience.

This study aims to examine in depth how the use of 3D modeling technology particularly through the manipulation of color, texture, and spatial depth, functions as a primary instrument in capturing audience interest while simultaneously fostering empathy. Furthermore, this research analyzes how these technical elements are transformed into a universal visual language within cross-cultural dialogue. In this way, Joyful Odyssey acts as a bridge of empathy, connecting modern technology with the fundamental human need for psychological well-being.

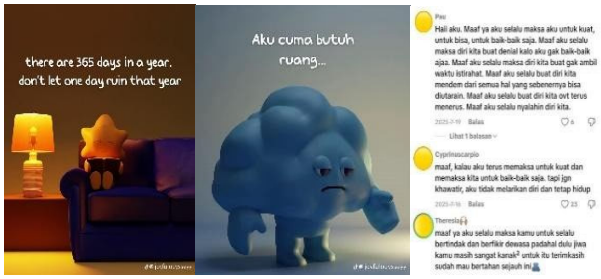


Fig 1. Joyful Odyssey digital content: (a) visual representation created using 3D modeling, (b) audience responses to emotionally evocative content

2. Joyful Odyssey as Space for Stories

2.1 The light and shade of 100 Years of the Korean Comics Industry

Joyful Odyssey emerged as an alternative medium amid the mental health crisis of the digital era. As social interactions began to diminish and individuals experienced emotional distress, many turned to social media as a space for seeking comfort and entertainment. In this context, Joyful Odyssey presents engaging visuals and emotionally resonant messages that encourage audiences to share and express their personal stories.

2.2 The Transformation of Technology into Digital Empathy

Joyful Odyssey transforms 3D technology into a

medium for engaging audiences about their mental health experiences. The use of 3D in Joyful Odyssey enables the creation of spatial depth and volume, which are essential for representing the complexity of the human mind. By constructing 3D environments that can be visually explored, audiences experience a stronger sense of presence, allowing heavy mental health topics to feel more approachable and less overwhelming.



Fig 2. Joyful Odyssey charity event: Charity Project and Social Action Conducted by Joyful Odyssey X Kitsunee at Kasih Agape Orphanage, Kelapa Gading

2.3 Design Analysis Based on Emotional Respons

Based on observations of Joyful Odyssey content, each asset is designed using Kansei Image principles to create a specific atmosphere. The following table presents an analysis of design elements adapted from digital comic industry standards.

Table 1. Kansei images and design elements comparison table

Kansei Image (Emotional Response)	Design Element	Analysis
Honesty	Character shape (round star character)	The star character with a rounded form symbolizes honesty, allowing audiences to feel safe and comfortable in openly acknowledging their mental burdens.
Kindness	Eye expression and posture (calm eyes and relaxed body posture)	The calm eye expression and relaxed posture convey a supportive atmosphere, encouraging audiences to feel accepted and emotionally supported.
Hope	**Color** (warm yellow lighting)	Color elements are used to build a sense of encouragement and hope. In this context, warm yellow lighting represents hope emerging during darkness.

This analysis demonstrates that well-crafted and detailed 3D visual quality can trigger deep emotional responses. This effectiveness is reflected in changes in audience behavior, shifting from passive viewers to active participants who experience a sense of emotional relief after engaging with the content.

3. Audience Responses to Joyful Odyssey

3.1 Empathy Crisis and Isolation in the Digital World

The digital environment often creates psychological pressure through unrealistic standards of living and a pervasive culture of judgment. As a result, many individuals feel afraid to be honest about their mental health conditions, leading to the formation of a defensive barrier that hinders meaningful connection with audiences who need a safe space to share their stories without fear of stigma. This condition reinforces emotional isolation and highlights the growing need for digital spaces that prioritize empathy, safety, and emotional authenticity.

3.2 Emotional Externalization through 3D Visual Elements

As a response to this crisis, Joyful Odyssey applies a 3D visual design strategy that focuses on building an image of honesty. Based on observations of the comment sections, audiences demonstrate the courage to engage in emotional externalization, expressing mental burdens that have long been suppressed. This behavior indicates that visual elements play a significant role in lowering emotional barriers and encouraging self-disclosure within digital spaces.

3.3 Emotional Release and Social Support

Interaction data show that immersive visuals and warm lighting create a sense of validation for audiences, making them feel heard and less alone in facing their challenges. This phenomenon extends beyond individual experiences and develops into digital social solidarity, where users actively offer support and appreciation to one another. Consequently, the use of 3D technology in Joyful Odyssey has proven capable of transforming a previously competitive digital platform into a supportive community space that fosters mental health recovery.

4. Result

Through the use of 3D modeling, Joyful Odyssey has successfully become a narrative space where individuals can share their stories. The applied visual elements have proven to be psychologically effective, based on Kansei Image principles, in reducing audience tension and encouraging the externalization of mental burdens. These findings emphasize that digital technology, when combined with thoughtful human centered narratives, can function as an instrument of social healing and inclusive mental health literacy.

Overall, Joyful Odyssey offers an important insight for the creative industry, highlighting that the future of technology lies in its ability to rehumanize interactions within digital environments. This aesthetic success is reflected in changes in audience communication patterns,

where individuals shift from passive viewers to active participants who openly share their emotional exhaustion and personal challenges in the comment sections. Therefore, the data confirm that 3D technology in Joyful Odyssey effectively transforms visual content into a space for social communication that fosters storytelling, emotional connection, and renewed motivation.

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Exploring Spatial Visual Design in Projection Mapping for Contemporary New Media Arts

Izati Nabila Marzuki[1], Ahmad Azaini Abdul Manaf[2],Nur Aisya Roslan[3], Muhammad Fandy Fauzi[4]

Lecturer, Department of Artificial Intelligence, Hebei Vocational University of Industry and Technology, China[1]

Faculty of Business & Communication,Universiti Malaysia Perlis (UniMAP)[1,&43]

Unicity Alam, Sungai Chuchuh,02100, Padang Besar,Perlis, Malaysia

Faculty of Creative Technology & Heritage, Universiti Malaysia Kelantan,[2]

Abstract

Projection mapping has become a prominent medium in contemporary new media arts due to its ability to transform physical spaces into immersive visual experiences. Unlike conventional screen-based visuals, projection mapping requires careful consideration of spatial visual design as visual content is directly integrated with architectural surface and three-dimensional forms. However, scholarly discussion on spatial visual design within projection mapping remains limited. Particularly in the context of artistic practice and art education. This study explores the application of spatial visual design principles in contemporary projection mapping works within new media arts. A qualitative, practice-based approach was employed through visual analysis of selected projection mapping projects supported by studio observation and documentation of the creative process. The findings reveal that spatial elements such as surface geometry, depth, scale and light space interaction play a crucial role in shaping visual composition and audience perception. The study highlights how effective spatial visual design enhances immersion, visual coherence, and experiential engagement in projection mapping artworks. These insights contribute to a deeper understanding of projection mapping as an artistic medium and provide valuable references for artists, educators, and students involved in new media arts practices.

Key Words: Projection mapping, spatial design, new media arts, immersive experience, visual perception

1. Introduction

Projection mapping has emerged as a significant medium within contemporary new media arts, enabling artists and designers to transform physical spaces into dynamic visual environments. Unlike traditional screen-based media, projection mapping integrates digital imagery directly onto architectural surfaces and three-dimensional objects, creating a seamless relationship between virtual visuals and physical space. These characteristic positions projection mapping within the broader discourse of spatial augmented reality, where digital content is contextually embedded into real-world environments (Bimber & Raskar, 2005).

In the field of new media arts, spatial considerations are central to artistic expression. Space is not merely a passive background but an active component that shapes visual composition, perception, and audience experience. Manovich (2001) argues that new media art challenges conventional visual frameworks by redefining how space, time, and interaction are experienced through digital technologies. Projection mapping exemplifies this shift by allowing visual narratives to unfold across irregular surfaces, architectural forms, and immersive spatial settings.

Despite the growing popularity of projection mapping in artistic installations, performances, and cultural events, academic discussions often prioritize technological aspects such as hardware configuration, calibration, and software tools. Studies focusing on technical innovation have contributed significantly to the development of projection mapping systems (Raskar et al., 2001), yet comparatively fewer studies examine the role of spatial visual design as a core artistic and experiential element. As a result, the principles guiding the effective integration of visual content with spatial form remain underexplored, particularly within artistic and educational contexts.

Spatial visual design in projection mapping involves the deliberate orchestration of surface geometry, scale, depth, perspective, and light to create coherent and immersive visual experiences. These elements influence how audiences perceive motion, form, and narrative within a projected environment. Research on immersive media suggests that spatial coherence and visual alignment are critical factors in enhancing audience engagement and perceptual immersion (Milgram & Kishino, 1994). In projection mapping, the success of a visual experience depends not only on visual aesthetics but also on how effectively visuals respond to and interact with the physical characteristics of space.

Within contemporary new media arts practice, there is a growing need to articulate spatial visual design as a distinct conceptual and methodological concern rather than a secondary technical consideration. By examining projection mapping through the lens of spatial visual design, this study seeks to contribute to a deeper understanding of projection mapping as an artistic medium. Such an exploration is particularly relevant for artists, educators, and students engaged in new media arts, where practice-based learning and spatial experimentation play a crucial role in creative development.

2. Literature Review

2.1 Projection Mapping in New Media Arts

Projection mapping, also referred to as spatial augmented reality, has been widely adopted in contemporary art practices for its ability to merge digital visuals with physical environments. Early foundational work by Raskar et al. (2001) introduced projection-based techniques that enable digital imagery to be accurately aligned with real-world objects, laying the groundwork for artistic and creative applications beyond technical domains. Subsequently, projection mapping has evolved from a technological novelty into a recognised medium within new media arts, frequently utilized in installations, performances, and public art contexts.

In artistic discourse, projection mapping is valued for its capacity to challenge conventional modes of visual presentation. Unlike flat-screen displays, projection mapping operates across architectural surfaces and three-dimensional forms, allowing artists to explore space as an active narrative element (Grau, 2003). This spatial integration transforms the viewing experience into an immersive encounter, where visual content responds directly to the contours, textures, and scale of the environment.

2.2 Spatial Visual Design and Visual Perception

Spatial visual design plays a critical role in shaping how visual information is perceived within a physical environment. In visual communication and design theory, spatial arrangement, depth cues, scale, and perspective are essential in guiding attention and constructing meaning (Ware, 2013). When applied to projection mapping, these principles become more complex, as visuals must be synchronized with irregular surfaces and varying spatial dimensions.

Research in perception and immersive environments suggests that spatial alignment between visual content and physical space enhances perceptual coherence and reduces cognitive dissonance (Slater & Wilbur, 1997). In projection mapping, misalignment between projected imagery and spatial form can disrupt immersion, whereas effective spatial visual design strengthens the illusion of depth, motion, and transformation. This highlights the importance of considering space not merely as a projection surface, but as a compositional element that actively influences visual interpretation.

2.3 Immersion and Experiential Engagement

Immersion is a key concept frequently associated with new media art and projection-based installations. Grau (2003) emphasises that immersive art seeks to envelop the viewer, minimizing the boundary between observer and artwork. Projection mapping contributes to this immersive quality by extending visuals beyond the frame, enveloping audiences within a spatially responsive visual environment.

Studies on immersive media experiences indicate that spatial continuity, visual coherence, and environmental responsiveness significantly influence audience engagement (Ryan, 2015). In the context of projection mapping, immersion is not solely dependent on visual spectacles but on how effectively visual elements interact with spatial characteristics. This suggests that spatial visual design is a determining factor in achieving meaningful experiential engagement within projection mapping artworks.

2.4 Projection Mapping in Educational and Practice-Based Contexts

Within art education and practice-based research, projection mapping has gained attention as a tool for experiential learning and creative exploration. Practice-based approaches in new media arts emphasise learning through making, experimentation, and reflection (Candy & Edmonds, 2018). Projection mapping projects often require students and practitioners to negotiate spatial constraints, visual composition, and audience perception simultaneously, fostering a holistic understanding of visual-spatial design.

However, existing literature in educational contexts often focuses on skill acquisition or technological proficiency, with limited emphasis on articulating spatial visual design as a conceptual framework. This gap underscores the need for studies that examine projection mapping through an artistic and spatial lens, particularly in higher education settings where new media arts curricula continue to evolve.

3. Research Design

This study adopts a qualitative, practice-based research approach to explore spatial visual design in projection mapping within contemporary new media arts. Practice-based research is widely recognised in creative arts disciplines as an appropriate methodology for

investigating artistic processes, outcomes, and experiential dimensions that cannot be fully captured through quantitative methods (Candy & Edmonds, 2018). This approach allows the researcher to examine projection mapping as both a creative practice and a research inquiry, where knowledge is generated through making, reflection, and critical analysis. The study focuses on selected projection mapping projects developed within a new media arts context. These projects involve the use of physical spaces such as walls, architectural elements, or three-dimensional objects as projection surfaces. The selected works were chosen based on their explicit exploration of spatial characteristics, including surface geometry, scale, depth, and interaction between projected visuals and physical form. The projects represent contemporary new media art practices where visual content is intentionally designed to respond to spatial conditions.

3.1 Research Context and Artworks

The study focuses on selected projection mapping projects developed within a new media arts context. These projects involve the use of physical spaces such as walls, architectural elements, or three-dimensional objects as projection surfaces. The selected works were chosen based on their explicit exploration of spatial characteristics, including surface geometry, scale, depth, and interaction between projected visuals and physical form. The projects represent contemporary new media art practices where visual content is intentionally designed to respond to spatial conditions.



Fig 1. Spatial Alignment and Surface Geometry



Fig 2. Spatial Alignment and Surface Geometry

The findings of this study support existing literature that emphasizes space as an active and integral element in new media art practices. Previous studies in spatial augmented reality highlight that precise visual alignment with physical form enhances perceptual coherence and strengthens immersive experience, as digital imagery becomes perceptually embedded within the real environment rather than perceived as a detached visual layer (Bimber & Raskar, 2005). In this context, the analysis demonstrates that the effectiveness of projection mapping is not determined solely by the complexity of visual content, but by the ability of spatial visual design to integrate form, light, and viewing space into a cohesive visual structure.

Within contemporary art and educational practice, these findings suggest that projection mapping should be approached as a spatial design process rather than a purely technical or software-driven activity. As immersive media art increasingly priorities experiential engagement, attention to spatial composition and audience positioning becomes essential in shaping meaningful visual encounters (Grau, 2003). Consequently, projection mapping pedagogy should place greater emphasis on spatial analysis and visual design principles, alongside technical proficiency, to support deeper artistic and conceptual understanding.

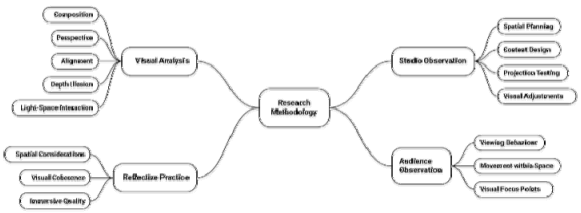


Fig 3. Research Methodology for Projection Mapping Projects

Data was collected through multiple qualitative methods to ensure depth and triangulation. Data analysis followed a thematic analysis approach, where recurring patterns and themes related to spatial visual design were identified across the selected works (Braun & Clarke, 2006). Visual, observational, and reflective data were coded to examine relationships between spatial elements and visual outcomes. Key themes included spatial alignment, depth perception, scale manipulation, and immersive coherence. These themes were then interpreted in relation to existing literature on projection mapping, spatial design, and immersive media.

4. Result and Discussion

The analysis reveals that precise alignment between projected visuals and physical form is a fundamental factor in achieving spatial coherence in projection mapping artworks. When visual content is accurately mapped onto three-dimensional surfaces, the projected imagery appears structurally integrated rather than superficially overlaid. This alignment strengthens the illusion of volume and continuity, particularly when the projection follows the geometry and curvature of the object. The findings indicate that spatial awareness during the design phase directly influences the perceptual stability of the visual experience.

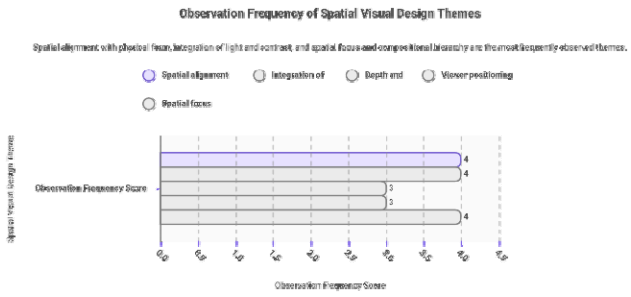


Fig 4. Summary of Findings Based on Spatial Visual Design

The graph illustrates that spatial alignment, light–contrast integration, and compositional focus exhibit the highest frequency scores, indicating their dominant role in shaping perceptual coherence and immersive experience in projection mapping artworks. These results reinforce the argument that spatial visual design operates as a core structural component rather than a supplementary aesthetic layer. The prominence of these themes aligns with theoretical perspectives that position space and visual perception as interdependent elements in immersive media environments (Ware, 2013).

The findings of this study affirm that spatial visual design plays a central role in shaping the effectiveness of projection mapping within contemporary new media arts. When visual content is designed in direct response to physical space, projection mapping moves beyond surface-level imagery and becomes an integrated spatial experience. This reinforces the understanding of projection mapping as a form of spatial media in which meaning is constructed through the interaction between visual elements and physical environments.

From the perspective of visual perception and spatial design, the findings highlight the importance of spatial organization and compositional hierarchy in directing attention and supporting visual comprehension. The extension of spatial design principles into three-dimensional projection contexts enhances perceptual clarity and reinforces the role of spatial composition in shaping audience experience within new media artworks (McCosker, 2016; Novak, 2015; Packer & Jordan, 2001).

5. Conclusion

This study concludes that spatial visual design is a critical determinant in shaping the effectiveness and experiential quality of projection mapping within contemporary new media arts. The findings demonstrate that projection mapping functions most meaningfully when visual content is conceived in direct relation to physical space, allowing projected imagery to operate as an integrated spatial entity rather than a surface-based visual overlay. By foregrounding spatial alignment, light orchestration, and viewer positioning, projection mapping emerges as a form of spatial practice that prioritizes perceptual coherence and embodied experience.

The study further underscores that immersion in projection mapping is not achieved through visual complexity or technological sophistication alone, but through the intentional organization of spatial relationships that structure how viewers perceive and engage with the work. Treating space as an active compositional element enables projection mapping to extend beyond representational visuals and into experiential design, reinforcing its relevance within contemporary new media art practices.

From an educational and practical perspective, these findings suggest that projection mapping pedagogy should emphasise spatial analysis, visual composition, and experiential awareness alongside technical instruction. For practitioners, the study highlights the importance of adopting a spatially driven design approach that considers form, environment, and audience perception as interconnected components of the creative process. By articulating spatial visual design as a core conceptual framework, this research contributes to a deeper understanding of projection mapping as an immersive and spatially situated art form and provides a foundation for

future investigations into spatial practices in new media arts (Bishop, 2012; Rendell, 2006).

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Exploring the Innovative Paths of AIGC Empowering Art Education Based on Cognitive Load Theory

Wang Yuanxue[1]

Lecturer, Department of Artificial Intelligence, Hebei Vocational University of Industry and Technology, China[1]

Abstract

In an era of rapid changes in information and technology, the trend of interdisciplinary integration has put forward new requirements for art education, along with the practical dilemma of excessive cognitive load on students in teaching. Therefore, the purpose of this study is to explore and analyze how AIGC optimizes the art teaching process by regulating the three types of cognitive load (intrinsic, extraneous, and germane load). The research object focuses on the application mechanisms and effects of AIGC technology in art education scenarios. The research method mainly adopts the theoretical analysis method, combining cognitive load theory with relevant research on the educational application of AIGC for analysis and research. AIGC is expected to significantly reduce students' learning burden, enhance their autonomous learning and interdisciplinary innovation capabilities by deconstructing knowledge difficulty, simplifying teaching interfaces, and promoting creative practice, thereby providing key support for the intelligent and personalized transformation of art education.

Key Words: AIGC, Art Education, Cognitive Load Theory, Innovative Paths

1. Theoretical Investigation of Cognitive Load Theory

Cognitive Load Theory was proposed by Australian educational psychologist John Sweller in the 1980s. This theory focuses on the capacity limitations of the human brain when processing new information, as well as how instructional design can avoid exceeding these limitations. The theory classifies cognitive load into three types: Intrinsic Load, Extraneous Load, and Germane Load. Detailed explanations of these three types of cognitive load are shown in Table 1. Therefore, optimal instructional design should, on the premise of reducing both intrinsic load and extraneous load, maximize the role of germane load, so that all mental resources are devoted to learners' independent construction of their own knowledge comprehension frameworks.[1]

Table 1. Explanations of the Three Types of Cognitive Load

Type	Definition	Implications for Teaching
Intrinsic Load	It is related to the complexity of the teaching content itself, such as the abstractness of the concept itself. Therefore, it is an objectively existing load.	Since it is objective, part of the load can be reduced through concept decomposition or prior knowledge systems (however, the extent of reduction is limited).
Extraneous Load	It is a negative load generated by poor instructional design or teaching activities.	Since this load is artificially created, it can be reduced by aligning teaching activities or design closely with teaching objectives and simplifying presentation.
Germane Load	A positive load generated by autonomous learning.	Since it is a positive and effective load that enables learners to engage in independent learning and memorization, it can be promoted and memory can be deepened through the design of teaching activities.

With the development of AI technology, AIGC has played a significant role in optimizing art education and exerted positive effects. It can not only help teachers and students deconstruct the objective difficulty of teaching content, thereby reducing students' intrinsic load, but also assist teachers in optimizing instructional design to lower students' extraneous load. Furthermore, it can help students enhance germane load during autonomous learning, enabling them to deepen their memory.

2. Research on the Application of AIGC in Education

"AIGC (Artificial Intelligence Generated Content) refers to a new type of technical paradigm that automatically generates digital content such as text, images, audio, and video through artificial intelligence technologies including machine learning and deep learning."[2] The application of AIGC in the field of education can be divided into two parts: teaching support for teachers and learning assistance for students, as shown in Table 2.

An analysis of the application of AIGC in education reveals that it can exert a positive effect on students' cognitive load. It can not only help teachers reduce students' intrinsic load and extraneous load from the perspective of teaching, but also enhance students' germane load from the perspective of their learning, thereby improving their ability and efficiency in self-directed learning.

Table 2. Analysis of the Application of AIGC in Education

Teaching Activities (Main Body)	Explanation
Teaching (Teachers)	Precise Analysis: AIGC can better deconstruct key knowledge points and accurately teach difficult and important teaching content to students.● Simplified Presentation: AIGC can be used to generate relevant courseware such as images, videos and texts that closely align with learning objectives. Interdisciplinary Integration: It can help teachers expand disciplinary knowledge and accurately capture key learning points and content of interdisciplinary integration.
Learning (Students)	Precise Learning: Students can use AIGC to accurately find learning content and answers to questions, thereby strengthening their learning weaknesses.● Knowledge Expansion: AIGC can make up for the knowledge that cannot be learned in class.● Thinking Expansion: AIGC tools can help students expand fixed thinking patterns, promote the boundaries of thinking, and break down thinking barriers.

3. Analysis of the Innovative Paths of AIGC Empowering Art Education Based on Cognitive Load Theory

Information update is accelerating, technology is advancing, disciplinary boundaries are consequently decomposed and reconstructed, and multidisciplinary integration has become the norm. Art education must also adapt to this trend, intersect with non-art fields such as natural sciences and social sciences, and achieve cross-border integration.[3] As an effective application achievement of the rapid development of AI technology, AIGC can convert content from different disciplines into materials and tools usable in art, enabling art teaching to access external knowledge without additional thresholds, thereby realizing interdisciplinary integration. Combining the above theoretical investigation of Cognitive Load Theory and the research analysis on the application of AIGC in education, this study holds that art education can be carried out through the following three innovative paths to cultivate and enhance students' interdisciplinary and independent learning abilities.

3.1 Difficulty Deconstruction and Prior Knowledge Completion — Sharing Intrinsic Load

For example, regarding knowledge points in art education that are vast and complex—such as art history and color theory—AIGC can pre-decompose this knowledge into hierarchical nodes. Before class, it pushes targeted content to address students' learning gaps based on statistics and feedback on their questions, and simplifies the concepts students need to understand. This ensures that intrinsic load remains within the bearable range of working memory, freeing up space for innovation in in-class learning and after-class expansion.

3.2 Multimodal Redundancy Elimination and Minimalist Presentation — Reducing Extraneous Load

Traditional art education courseware commonly adopts a visual presentation format of "text + images + videos". When students are faced with redundant text, images and videos, they may feel fatigued. Therefore, AIGC can be used to analyze teaching objectives and then simplify the design of courseware. This enables more accurate delivery of knowledge points to students, thereby reducing their extraneous load.

3.3 Rich Creative Practice and Knowledge Expansion — Facilitating Germane Load

Based on students' current learning content and creative level, AIGC generates ideas and practices. For example, it outputs multi-style sketches and interdisciplinary reference cases for the same theme, guiding students to compare, revise and reconstruct. In the process of repeated debugging practice and self-directed learning, students actively connect new and old knowledge nodes, and germane load increases accordingly, promoting in-depth understanding and transfer innovation.

4. Conclusion

Based on Cognitive Load Theory, this study explores the innovative paths of AIGC in art education. Cognitive load is divided into intrinsic load, extraneous load, and germane load. AIGC can reduce intrinsic load by deconstructing difficult knowledge points, decrease extraneous load by simplifying teaching design, and enhance students' germane load through multimodal creative practice, thereby promoting their abilities of independent learning and interdisciplinary integration. AIGC can not only assist teachers in precise teaching but also help students expand their thinking and strengthen their learning, ultimately realizing the innovative development of art education on the basis of reducing burden and improving efficiency.

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Digital Migration of Cultural Memory and the Construction Mechanism of Collective Memory in Chinese Independent Animation: A Case Study of Chinese Poem Choir, 2015

Lin Xiao[1]

Associate Professor, School of Art and Design, Rural Revitalization Cultural Innovation Design Research Center, Weifang University of Science and Technology, China[1]

Abstract

This study focuses on the mediating role of Chinese independent animation in this process, taking the *Chinese Poem Choir* series as a typical case to systematically investigate how it achieves the contemporary translation of classical poetry and historical narratives through digital animation technology. The research finds that *Chinese Poem Choir*, as a 'digital memory infrastructure,' effectively bridges personalized nostalgic experiences with collective cultural identity by activating emotional triggers through its ink-wash visual style, enabling synchronous memory production via danmu interaction, and configuring algorithmic visibility under the 'Guofeng' (national style) label. This not only reveals the technological pathways for constructing cultural confidence but also provides a critical theoretical framework and practical paradigm for the digital survival of cultural heritage, offering significant implications for understanding the politics of memory in platform societies.

Key Words: Cultural Memory, Digital Migration, Collective Memory, Chinese Independent Animation

1. Introduction

In the Chinese context, traditional cultural codes such as classical poetics and historical legends face structural erosion during modernization, while digital media provide critical infrastructure for their migration and revitalization. This study focuses on the independent animation series *Chinese Poem Choir*(2015–), which translates classical poetry into visual narratives anchored in the historical anecdotes of Shanghai's Jiading District. Representative works such as *Yuandan*, *Xiangsi*, and *Youzi Yin*strategically evoke cultural nostalgia and national sentiment by integrating traditional two-dimensional animation aesthetics with digital compositing technology. The core research question is: How does *Chinese Poem Choir* realize the migration of cultural memory through digital animation practice, and what mechanisms does it employ to construct collective memory within the field of Chinese independent animation?



Fig 1. Xiangsi, 2015

The central argument posits that the series fosters new collective identity and cultural subjectivity among contemporary youth audiences through a triple mechanism of aesthetic innovation, narrative embedding, and platform synergy, providing a critical theoretical pathway for understanding the politics of memory in digital China.

2. Literature Review and Theoretical Positioning

2.1 Theoretical Genealogy of the Digital Migration of Cultural Memory

Cultural memory studies regard memory as a dynamically constructed social practice mediated by symbolic systems, rather than static storage (Assmann, 2011). Digital migration involves not only the transformation of material artifacts into virtual data but, more fundamentally, the "remediation" of memory forms and the reconstruction of affordances (Bolter & Grusin, 2000). Hoskins (2018) notes that platformized memory renders cultural heritage calculable, curatable, and commercializable—a transformation that challenges the stability assumptions of traditional archival theory. Independent animation, as an "affective technology," provides an embodied memory interface for younger generations by visualizing abstract historical experiences.

2.2 The Collective Memory Construction Function of Animation Media

The essence of collective memory lies in the integration and regulation of individual experiences by social frameworks (Halbwachs, 1992). Through its semiotic

density and spatiotemporal plasticity, animation translates shared history into communicable image-narrative complexes, a process particularly prominent in Chinese independent animation. Unlike the ideological co-optation often seen in commercial animation, independent works frequently navigate the edges of state narratives, addressing issues of historical trauma or cultural revival through experimental aesthetics (Wu, 2021). While existing research has noted the role of "Guofeng" animation in fostering cultural identity (Zhang & Li, 2023), it has not sufficiently explained its digital memory mechanisms—namely, how algorithms curate, how audiences participate, and how aesthetics encode. This study fills this gap by treating *Chinese Poem Choir* as a "memory infrastructure" and examining how its triple mechanism of technology, aesthetics, and society collaboratively reconstructs collective memory.

3. Research Method

This study adopts an exploratory single-case nested design, taking the *Chinese Poem Choir* series as the unit of analysis to systematically examine the triple mechanisms through which independent animation realizes the digital migration of cultural memory and the construction of collective memory. Case selection follows the principle of theoretical sampling: the series exhibits cultural typicality (translation of classical poetry), media uniqueness (ink-wash animation language), and data richness (multi-platform dissemination trajectories), meeting the criteria of an "informative case" (Yin, 2018).

4. Case Analysis: The Memory Construction Practice of *Chinese Poem Choir*

4.1 Case Overview and Institutional Context

Chinese Poem Choir is a public-interest independent animation series launched in 2015 by Peng Qingzheng's team, based on adaptations from the eponymous 2010 music album by Yi Fenglin. As of 2025, six episodes have been released (*Yuandan*, *Xiangsi*, *Youzi Yin*, *Yin Hu Shang Chu Qing Hou Yu*, *Ye Si*, *Yong Mei*), with a total duration of 87 minutes. The series inherits the traditional Chinese ink-wash painting style, integrating digital 2D animation and post-production compositing to form a unique "New Chinese" aesthetic paradigm. Funded by the Shanghai Cultural Foundation, its original purpose was to ‘counter cultural amnesia in the process of urbanization.’ This dual identity—as both a state cultural project and a grassroots memory practice—provides a typical sample for examining the complexities of memory mechanisms.

4.2 Mechanism Synergy: The Recursive Cycle of Digital Migration

The triple mechanisms do not operate linearly but form recursively enhancing cycles through ‘mnemonic plasticity’: **Technological affordances** amplify the emotional efficacy of **aesthetic encoding** , attracting **social participation**. Participation data, in turn, trains algorithms to optimize recommendations, thereby solidifying specific memory patterns technologically. This cycle explains why *Chinese Poem Choir* has maintained cultural relevance for eight years, but it also reveals the fragility of independent animation as ‘soft infrastructure’—its memory construction is entirely dependent on the algorithmic logic of commercial platforms.

5. Conclusion

Through a case study of the *Chinese Poem Choir* series, this research systematically explores the mediating role of Chinese independent animation in the digital migration of cultural memory and the construction mechanisms of collective memory. Grounded in Jan Assmann's Cultural Memory Theory and Maurice Halbwachs's collective memory framework, and employing a mixed-methods approach incorporating digital ethnography and multimodal discourse analysis, the study reveals how the series translates classical poetry and historical narratives into contemporary digital experiences through ink-wash visual aesthetic encoding, interactive narrative strategies, and cross-platform algorithmic curation mechanisms. This process not only demonstrates the paradigmatic reshaping of memory storage and reconstruction logic by digital technology but also highlights the potential of independent animation as a ‘digital memory infrastructure,’ offering a critical theoretical pathway and practical paradigm for the sustainable digitalization of cultural heritage.

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Generative vs. Assistive AI: Transforming Creative Workflows in Comic Publishing

Fythullah Hamzah[1], Ahmad Azaini Abdul Manaf[2]

Associate Professor, Faculty of Creative Multimedia, Multimedia University, Malaysia [1]

Associate Professor, Faculty Of Creative Technology And Heritage University Malaysia Kelantan, Malaysia[2]

Abstract

This study critically examines the contrasting roles of assistive and generative artificial intelligence (AI) within the Malaysian comic industry, focusing on their implications for creative practices, production workflows, and cultural representation. Assistive AI, encompassing tools that facilitate inking, colorisation, and layout design, primarily functions as an augmentation mechanism, enabling emerging and independent creators to enhance efficiency and reduce technical barriers. Conversely, generative AI systems, which autonomously produce visual content, narrative structures, and complete comic panels, introduce opportunities for scalability and creative experimentation while simultaneously raising concerns regarding intellectual property, ethical standards, and cultural authenticity. Through a comparative analysis of Malaysian industry responses, this paper highlights the divergent positions of major publishers such as PTS and Kadokawa-Gempak , which categorically reject AI-generated content to safeguard human artistry, alongside individual creators like Fanikartun, who advocate for AI as a complementary rather than substitutive tool. By situating these international perspectives within Malaysia's rapidly expanding creative economy. This study provides a framework for understanding how local practitioners can negotiate the intersection of technological innovation and artistic integrity.

Key Words: A.I , Malaysian Comic Industry, Cultural, Technology

1. Introduction

The emergence of artificial intelligence (AI) in creative industries has sparked global debate, particularly within the comic sector. International publishers such as DC Comics and Marvel Entertainment have adopted stances against AI-generated content, citing concerns over artistic integrity, originality, and the preservation of human creativity. These positions reflect a broader commitment to maintaining the authenticity and emotional depth that define traditional comic storytelling.

In contrast, the Malaysian comic industry presents a more nuanced landscape. Local publishers remain divided on the integration of AI technologies, with some adopting restrictive policies while others embrace AI-driven production to maximize output. For instance, established publishers such as PTS and Kadokawa Gempak Starz have publicly maintained a "no AI" policy, emphasizing the importance of human artistry and cultural representation in their works. Conversely, smaller and emerging companies, often driven by commercial imperatives, have increasingly leveraged generative AI tools to accelerate production and expand their catalogues. This trend has resulted in a surge of AI-generated comics flooding the market, raising critical questions about quality, originality, and cultural authenticity.



Fig 1. DC Drops Artist Francesco Mattina's Variant Covers After Alleged AI Use.

This paper examines these contrasting approaches within Malaysia's comic ecosystem, situating them against global industry norms and exploring their implications for creative practices, production workflows, and cultural representation. By analyzing publisher policies, market dynamics, and ethical considerations, the study seeks to provide a comprehensive understanding of how Malaysian creators and companies navigate the tension between technological innovation and artistic integrity.

2. Generative vs. Assistive

2.1 The Debate of A.I usage in the Comic Industry

The global comic industry is undergoing a paradigm shift as artificial intelligence technologies evolve from simple automation aids to powerful generative systems. In Malaysia, this transformation mirrors a broader digital momentum where government-backed initiatives, such as the NAIO, are fostering a fertile environment for AI integration in creative sectors. Within this evolving landscape, AI adoption can be summarised into two distinct categories Assistive AI and Generative AI.

AI Tyoe	Summary
Assistive AI	Enhances artists' skills through tools that optimize inking, coloring, pose, and layout generation, thereby democratizing comic production and easing technical barriers.
Generative AI	Autonomously writes narratives and generates fully composed panels or entire issues based on textual prompts.

Table 1. The summary of generative and assistive AI

Internationally, mainstream publishers present contrasting stances on generative AI adoption. DC Comics' president, Jim Lee, unambiguously stated that DC will "not support AI-generated storytelling or artwork not now, not ever," underscoring the essential role of human creativity and emotional authenticity. Similarly, Marvel's Editor-in-Chief C.B. Cebulski affirmed that Marvell will not be using AI in the Marvel Comics division.

2.2 Creative Practices

Incorporation of AI into comic creation has redefined traditional creative practices by introducing new modes of ideation and visualization. Assistive AI tools, such as automated inking and colorization systems, enable artists to focus on narrative depth and stylistic refinement rather than repetitive technical tasks. This augmentation fosters a hybrid creative process where human intuition and machine precision coexist. Conversely, generative AI introduces a paradigm where creativity can be algorithmically simulated, producing character designs, environments, and even narrative arcs from textual prompts. While this democratizes comic creation by allowing non-specialists to generate polished outputs, it raises critical questions regarding originality and authorship. In Malaysia, where comics often serve as cultural artifacts reflecting local identities, the tension between human-driven creativity and machine-generated aesthetics underscores the need for frameworks that preserve artistic authenticity while embracing technological innovation.

2.3 Production Workflow

The AI integration has significantly altered production workflows within the comic industry. Traditionally, comic production involves sequential stages, concept development, sketching, inking, coloring, lettering, and publishing. Each segment requiring specialized skills and considerable time investment. Assistive AI optimizes these workflows by automating labor-intensive tasks such as line refinement and color palette application, thereby reducing turnaround times and operational costs for independent creators and small studios. In contrast, generative AI disrupts conventional workflows by enabling end-to-end automation, where entire cover page or panels can be generated in minutes. While this accelerates production, it also introduces challenges related to quality control, consistency, and ethical attribution. Malaysian studios experimenting with AI-driven workflows must balance efficiency gains with the imperative to maintain cultural and narrative coherence, particularly in works intended for regional and international audiences.

Feature	Assistive AI	Generative AI
Role	Tool for inking, color, layout help	Creates full characters, scripts, scenes
Creative Control	Artist-led, AI supports tasks	AI-led outputs from prompts
Market Impact	Enhances efficiency for professionals	Broadens content scope, but raises ethical issues
Adoption in Malaysia	Used in classrooms, studios	Rapid growth via startups, govt programs, research

Table 2. Kansei images and design elements comparison table

Therefore, many contents were mass-produced in the space where the barrier disappeared. Second, early essay comics were mainly serialized, but gradually feature-length story comics with stories were serialized like regular comics. With the development of the Internet, early light essay comics became popular, and when they were commercialized, they jumped into the market with a number of professional writers and amateurs who recognized the possibility.

2.3 Comparison and Impact.

Comics function as a medium for cultural storytelling, embedding local values, traditions, and social narratives within visual and textual forms. The adoption of AI in this domain necessitates critical reflection on cultural representation. Assistive AI, by supporting human creators, generally preserves cultural authenticity, as artists retain control over thematic and aesthetic decisions. However, generative AI, which relies on datasets often dominated by Western-centric imagery and narrative structures, risks homogenizing cultural expression and marginalizing indigenous perspectives. This poses a significant challenge. Ensuring that AI-generated content reflects local identities requires deliberate curation of

training datasets and the development of culturally sensitive algorithms. Failure to address these concerns may result in narratives that lack resonance with Malaysian audiences and undermine the role of comics as vehicles for cultural continuity.



Fig 2. Flag errors in Malaysia in AI generated images.

3. Ethical vs. Sales

The inclusion of AI-generated artwork on a comic cover at a prominent Malaysian book fair in 2024 sparked considerable controversy, prompting a local artist to publicly reaffirm their commitment to traditional techniques. Later that year, in July 2024, the renowned Malaysian comic magazine Gila-Gila encountered widespread criticism for incorporating AI-generated visuals, which many readers perceived as diminishing the publication's artistic integrity. In response to the backlash, the magazine's founder and publisher issued a formal apology. Similarly, Kadokawa Gempak Starz, under its Magic Bean imprint, released *The Butterfly Catcher*, promoted as Malaysia's first AI-generated picture book. This move triggered strong objections from the illustrator community, ultimately leading the publisher to withdraw the book from circulation. Additionally, AI-generated visuals have appeared in reissued novels by Amir Muhammad's Fixi imprint, created using tools like Stable Diffusion.

4. Result

The integration of AI into Malaysian comics has sparked vigorous debate within the creative community. Critics argue that AI-generated art undermines the prestige of established publications and reduces opportunities for human artists, particularly those seeking entry-level positions. Legal ambiguity further complicates the issue, as Malaysia's Copyright Act 1978 does not recognize AI as a "qualified person," leaving fully AI-generated works without clear copyright protection. This ongoing discourse continues across social media platforms such as Facebook and Reddit, where reactions remain mixed but predominantly critical of AI's growing influence in the local comic industry.

4. Conclusion

The primary rationale behind publishers' adoption of AI in comic production is not driven by technological innovation or creative enhancement, but rather by economic considerations. Specifically, AI is utilized as a cost-cutting mechanism and a means to accelerate content generation, enabling publishers to mass-produce material within significantly shorter timeframes. This approach reflects a commercial imperative that prioritizes output volume over artistic integrity, raising critical questions about sustainability, quality, and the long-term impact on creative labor markets.

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