
Exploring Audience Emotional Resonance in Animation and Live-Action Films through the Lens of Emotional Design Theory

Chia-Liang Chang

Department of Digital Media and Education Industry, National Taitung University, Taitung, Taiwan

Email: idit007@gmail.com

Abstract

The weaving techniques of the Tao people of Lanyu embody rich life wisdom and [traditional](#) values. However, they are facing decline due to modernization and the crisis of cultural transmission. This study focuses on how animation and film can enhance public understanding of Lanyu culture and explores the effectiveness of these two media in cultural dissemination. Animation, with its creative freedom and diverse styles, can enhance cultural appeal, while live-action film conveys cultural context intuitively through realism, deeply portraying the cultural background to evoke audience resonance. By comparing the differences in emotional responses and the advantages and limitations of both media in cultural cognition, this study aims to provide new perspectives for cultural preservation and promotion, deepen societal respect and awareness of Lanyu's weaving culture, and fulfill the mission of cultural sustainability.

Keywords: Lanyu weaving culture, Animation, Live-action film, Emotional design

1. Introduction

The traditional weaving techniques of the Tao people of Lanyu embody unique life wisdom and cultural values. However, public understanding of these practices remains limited. With the advancement of multicultural education in Taiwan, fostering greater awareness and appreciation of Lanyu culture among non-Indigenous populations has become a pressing issue. This study compares animation and live-action film as two distinct media to explore how visual strategies and narrative techniques influence viewers' emotional responses and cultural perceptions. Animation, with its high degree of creative freedom, combines visual imagery with imagination to enhance cultural appeal. In contrast, live-action films employ realistic portrayals of actual settings, allowing for a more direct and intuitive transmission of cultural context. By examining the strengths and limitations of each medium, this research offers new perspectives on cultural communication and contributes to deepening the understanding and respect for Lanyu weaving culture among non-Indigenous audiences. This constitutes both the motivation and significance of the study.

Building upon the framework of emotional design theory, this study investigates how animation and live-action films evoke emotional resonance in audiences and analyzes their effectiveness in enhancing both emotional engagement and cultural understanding. By employing different forms of media, the research explores how viewers may develop emotional connections to specific cultural elements, thereby deepening their cultural awareness. Emotional Design theory emphasizes the importance of addressing users' emotional needs through three levels: the visceral level (appearance and aesthetics), the behavioral level (usability and experience), and the reflective level (personal meaning and values). This theoretical lens serves as a foundation for proposing practical insights into interdisciplinary design that integrates cultural heritage with visual storytelling.

The research addresses the following questions: (1) What are the similarities and differences in audience emotional responses to animation and live-action films? Which medium more effectively fosters cultural understanding and emotional connection? (2) Do emotional resonances vary among audiences of different age groups or cultural backgrounds when engaging with animation versus live-action media?

2. Literature Review

2. 1. Lanyu Weaving Culture

However, the transmission of these techniques often depends on oral instruction and the mimetic observation of movements from elder practitioners. Such informal modes of learning are rarely systematized or widely documented, making the tradition vulnerable to loss over time. This has led to the disappearance of several advanced Indigenous weaving techniques across Taiwan. Fortunately, a small number of elderly Tao women on Lanyu still retain knowledge of traditional weaving practices. Nevertheless, the extent to which the original techniques have been preserved remains uncertain, underscoring the urgency of cultural preservation.

As traditional craftsmanship faces increasing threats from modernization and the rise of mechanized textile production, the preservation of Lanyu's weaving culture becomes ever more critical. Despite these challenges, the continued efforts in cultural transmission and protective measures have allowed the tradition to survive and evolve within younger generations (Tsai, 2015).

2. 2. Emotional Design Theory

Emotional design theory emphasizes that design should not only fulfill functional requirements but also consider the emotional experiences of users. According to Norman's (2004) model of emotional design, there are three levels of design: visceral, behavioral, and reflective. The **visceral level** pertains to the appearance and sensory appeal of a product, aiming to trigger

instinctive reactions and pleasurable emotions. The **behavioral level** focuses on usability and the user's interactive experience, emphasizing convenience and satisfaction during operation. The **reflective level** relates to the user's introspective emotional responses and aims to elicit deep emotional resonance that contributes to the internalization of personal values. In the review of existing literature, both domestic and international, emotional design theory has predominantly been explored within the fields of product design, cultural and creative goods, and packaging design (Zeyuan & Choi, 2023).

Emotional design theory has been widely applied in product design, interaction design, and digital media. In culturally oriented design, it is particularly valuable for creating engaging visual and experiential elements that facilitate user understanding and acceptance of culture. This approach is especially crucial in educational settings and in the promotion of traditional cultures (Yanh, 2016). Emotional design has already been applied across various industries, demonstrating significant and positive potential impacts on the design sector. The interplay among different levels of emotional design exerts a direct influence on user behavior and the overall success of design outcomes (Yusa, Ardhana, Putra, & Pujaastawa, 2023a).

2. 3. *Visual Theory of Animation*

Animation, created frame by frame, allows for the visualization of scenarios unrestricted by the physical limitations of the real world. This creative freedom enables artists to explore exaggerated, abstract, or entirely imaginary visual effects. Through manipulation of time and space—such as instantaneous size changes or rapidly shifting backgrounds—animation offers viewers unique, non-realistic visual stimuli. As a fusion of technology and art, animation brings otherwise inanimate images to life, delivering emotionally evocative narratives that offer rich visual experiences. The design of animated transitions plays a vital role in emotional expression and audience impact (Ma & Chen, 2019; Yang, 2016).

A well-crafted storytelling approach must account for the emotional flow of the audience, effectively managing the rise and fall of emotions to gradually capture attention and elicit emotional resonance (Sharda, 2007). In animated narratives, the most commonly employed structure is the “three-act structure,” also referred to as the three-act play (Cantor and Valencia, 2004), which serves as the standard framework for conveying the emotional arc of a story. Skilled animators further enhance emotional engagement and perception through technical strategies such as camera movement, shot composition, and sound effects, thereby fostering more positive emotional responses among viewers (Mayer & Estrella, 2014; Le et al., 2018).

Unlike static images, animation primarily relies on motion to convey meaning. The rhythm and speed of movement directly affect emotional responses (Manovich, 2001). Animated characters

often use exaggerated expressions and actions—such as enlarged eyes or rapid movements—to communicate emotions and behavior. These characters are often symbolically designed, using simplified visual elements to express personality and emotion. Additionally, animation emphasizes visual coherence, utilizing color, lines, and shapes to convey mood, setting, or narrative progression, rather than relying solely on dialogue.

2. 4. Visual Theory of Live-Action Film

Live-action films, especially those using real-world footage, typically adhere to physical realism. The actors and locations exist in tangible reality, and visual representation is governed by actual lighting, space, and physics. Film scenes often require location shooting or computer-generated imagery (CGI) to complete, and are constrained by physical space, production costs, and on-site conditions.

Character expressions and emotions are conveyed through live actors, using micro-expressions, vocal tones, and body language to deliver nuanced emotional performances—thus heavily relying on the actors' interpretative skills. Narrative development is guided by the *mise-en-scène* and ambient sound, with concrete, realistic settings and plotlines allowing the audience to perceive story development through detailed cues.

To summarize the above literature review and key findings, both animation and live-action film theories pertain to image-making and storytelling, yet their differing media and technical characteristics have led to distinct theoretical frameworks. Animation theory emphasizes creative freedom, symbolic representation, and imaginative visual expression, making it suitable for non-realistic narratives. In contrast, live-action film theory highlights realism, emotional authenticity, and technical precision, aligning well with realistic storytelling. Each medium possesses a rich theoretical foundation and distinct visual strategies, offering complementary strengths in visual communication and emotional engagement.

3. Research Method

After establishing the research background and objectives, this study designed questionnaire items based on the three levels of Emotional Design Theory—visceral, behavioral, and reflective—to evaluate audience responses in terms of cultural understanding and emotional resonance after viewing both animated and live-action film samples.

A quantitative research approach was adopted through the use of structured questionnaires. Participants of various ages and genders were recruited, and informed consent was obtained prior to the experiment. Participants first viewed the animation sample and completed a post-viewing

evaluation questionnaire. They then watched the live-action film sample and filled out the same questionnaire again for comparative analysis.

Both the animation and live-action film samples used in this study centered on the weaving craft of Lanyu as the cultural case. The animation sample selected was “TOMINON”, an original animated work by Li Pei-Chen and collaborators from National Taitung University. The film received the Silver Award in the Animation Category at the 11th MATA Award, hosted by the Ministry of Education for audiovisual productions on Indigenous themes by university and secondary school students, marking it as a significant and representative work. The live-action film sample chosen was “Wearing the Ocean: Textiles and Dress”, produced by the National Museum of History. This documentary was officially selected by the 2021 Chicago Fashion Film Festival in the United States. A summary of both samples is provided in the following the Table 1.

Table 1. Two samples of this study (Source: Compiled by this study)

Type	Screenshot	Title	Duration	Source	Award
Animation		TOMINON	00:05:00	National Taitung University	Silver Award, 2024 MATA Award, Ministry of Education, Taiwan
Live-action film		Wearing the Ocean: Textiles and Dress	00:04:02	National Museum of History	Official Selection, 2021 Chicago Fashion Film Festival, USA

This study will employ a questionnaire survey as the primary method of data collection. (1) Academic literature related to Lanyu weaving culture, emotional design theory, and cultural communication will be collected to establish a solid theoretical foundation for the research. (2) The study aims to understand the audience’s emotional responses and cultural perceptions when viewing animated or live-action works centered on Lanyu’s weaving culture. (3) The questionnaire is designed to assess emotional experiences, sense of cultural identity, and the audience’s

comprehension and acceptance of cultural elements presented in the works. A five-point Likert scale will be used to quantify the responses.

Questionnaire Design. This study designs its questionnaire based on the three levels of Norman's Emotional Design Theory: the visceral level, the behavioral level, and the reflective level. For both the animation and live-action film samples, the visceral level focuses on visual and auditory stimuli. Questionnaire items at this level assess aspects such as color composition, music and sound effects, and the symbolic meaning of totems (four items). The behavioral level emphasizes the process of production, including film editing, scene transitions, and the creative process (three items). The reflective level concentrates on the viewer's post-viewing reflections, such as perceived spiritual value, cultural respect, and emotional connection to the content (three items). In total, the questionnaire comprises ten items, categorized according to these three dimensions. A summary of the categories and detailed items is presented in the table below.

Table 2. Questionnaire Items and Corresponding Levels in This Study

Level	Questionnaire Items
Visceral Level	V1. The color and composition of the animation/live-action film conveyed the beauty and uniqueness of Lanyu weaving. V2. The sound effects or music enhanced my sense of the Lanyu cultural atmosphere. V3. The visual presentation helped me better understand the symbols and meanings of Lanyu weaving patterns. V4. The overall visual and auditory design captured my attention and increased my interest in the weaving culture.
Behavioral Level	B1. Through the film's editing within the narrative, I gained a deeper understanding of Lanyu weaving culture. B2. The transitions between scenes in the story enhanced my understanding of the cultural context of Lanyu weaving. B3. The presentation of the creative process in the animation/live-action film deepened my appreciation for the complexity of the weaving techniques.

Reflective Level	R1. After watching the animation/live-action film, I gained a deeper appreciation for the historical and spiritual values behind Lanyu's weaving culture. R2. The animation/live-action film prompted me to reflect on the value differences between modern and traditional cultures, and inspired greater respect for indigenous traditions. R3. After viewing, I developed an emotional connection to Lanyu's weaving culture and hope that more people will come to understand and appreciate it.
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4. Finding and Discussion

This chapter presents the quantitative research findings based on the questionnaire designed in Chapter 3. Employing a quantitative research methodology, the study uses both textual analysis and survey data to systematically examine the mechanisms and effects of emotional resonance as elicited through emotional design theory in both animation and live-action film, with a focus on the case of Lanyu's weaving culture.

1. Descriptive Statistics of Respondent Demographics

Descriptive statistical analysis was conducted on the demographic variables of the survey participants. A total of 83 valid responses were collected. In terms of gender, 60% of respondents identified as biologically female (49 individuals), and 40% as biologically male (34 individuals). Regarding age, the majority of participants fell within the 18–24 age group, accounting for 79.8% (67 individuals), indicating that the sample is predominantly composed of younger individuals. This may be attributed to a higher level of acceptance of new media formats (such as animation and film) among younger audiences. The second-largest age group comprised individuals aged 45 and above, accounting for 11.9%, a segment that may place greater value on cultural preservation and traditional heritage.

In terms of prior knowledge of Lanyu culture, 27.7% (23 individuals) reported “no knowledge at all,” while 53% (44 individuals) indicated they had “some knowledge.” Combined, these responses represent 80.7% of the sample, suggesting that the majority of the public remains largely unfamiliar with Lanyu culture, highlighting a significant opportunity for further cultural education and dissemination.

In this study, the same group of participants was asked to complete the emotional design questionnaire after viewing the animation, and again after viewing the live-action film. The

objective was to investigate how different media formats influence cultural understanding and emotional feedback. A paired sample *t*-test was conducted using SPSS to compare the two sets of responses, as presented in the Table 3.

Table 3. Paired Samples Test

Item	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
V1	.143	.838	.091	-.039	.325	1.562	83	.122
V2	.238	.900	.098	.043	.433	2.424	83	.018
V3	-.036	.884	.096	-.228	.156	-.370	83	.712
V4	.095	.688	.075	-.054	.244	1.270	83	.208
B1	-.131	.818	.089	-.309	.047	-1.467	83	.146
B2	.167	.955	.104	-.041	.374	1.600	83	.113
B3	.036	.987	.108	-.179	.250	.332	83	.741
R1	.119	.842	.092	-.064	.302	1.296	83	.198
R2	.202	.708	.077	.049	.356	2.621	83	.010
R3	.202	.724	.079	.045	.360	2.560	83	.012

As shown in Table 3, a paired-sample *t*-test was conducted on data collected from 83 participants who completed the emotional design questionnaire after viewing both the animation and the live-action film related to the Lanyu weaving culture. The analysis revealed statistically significant differences ($p < 0.05$) in three questionnaire items: V2 ($p = 0.018$), R2 ($p = 0.010$), and R3 ($p =$

0.012). These results indicate that participants reported significantly different emotional responses to the two media formats in these specific areas, with the animation receiving higher average scores in all three items. The findings are analyzed as follows:

V2: The sound effects and music in the animation/film enhanced my sense of the Lanyu cultural atmosphere.

The t-test result was $t = 2.424$, $p = 0.018$, indicating that the animation was more effective than the live-action film in enhancing participants' perception of the cultural atmosphere through auditory design. This may be attributed to the greater creative freedom in sound and background music design typically available in animation, allowing for a more vivid, dynamic, and emotionally resonant cultural expression.

R2: The animation/film prompted me to reflect on the differences between modern and traditional cultural values and fostered my respect for traditional culture.

The t-test result was $t = 2.621$, $p = 0.010$, suggesting that the animation more effectively encouraged reflection on the contrast between modern and traditional values and promoted a deeper respect for traditional culture. This could be due to the animation's ability to convey cultural meanings more effectively through visual creativity and narrative structure, thereby evoking stronger emotional resonance and value-based contemplation.

R3: After viewing, I felt a stronger emotional connection to the Lanyu weaving culture and hoped that more people could learn about it.

The t-test result was $t = 2.560$, $p = 0.012$, indicating that participants developed a deeper emotional connection to the Lanyu weaving culture after watching the animation and expressed a stronger desire to promote awareness of it. The animation's advantage may lie in its capacity to present cultural details in a more engaging and expressive manner, thereby enhancing cultural identification and the motivation for cultural dissemination.

For all other questionnaire items, the p-values were greater than 0.05, indicating no statistically significant differences between the animation and the live-action film in those aspects of emotional response.

Building on the three levels of Emotional Design Theory, this study offers the following interpretations:

Visceral Level : Although the animation and live-action film differ stylistically, both works emphasize the blue hues and motifs of Lanyu weaving, which may have led participants to provide similar ratings for V1 (color and composition). Since nearly 80% of participants reported little to

no prior knowledge of Lanyu culture, both media equally challenged their ability to interpret the totemic symbols, resulting in no significant difference for V3 (understanding of symbolic meaning). Both samples are short (4–5 minutes), keeping viewers highly focused; consequently, almost all participants rated V4 (overall audiovisual appeal) positively, producing a ceiling effect and masking any medium-based differences.

Behavioral Level: All three items (B1: editing, B2: scene transitions, B3: creative process) failed to reach significance. The behavioral level centers on users' experience of the production process, yet non-specialist participants may lack sensitivity to film-making techniques. Moreover, the brief duration and narrative focus on cultural storytelling limit the depth of observable production processes, preventing strong perceptual differences.

Reflective Level: Items R2 and R3—pertaining to value reflection and emotional connection—showed significant differences in favor of animation, as this medium excels at symbolic visual storytelling, character design, and atmosphere creation, thereby eliciting deeper personal reflection and affective projection than documentary-style live action. In contrast, R1, which assesses understanding of historical and spiritual values, is more knowledge-based than emotionally driven, making the absence of a significant medium effect reasonable.

5. Conclusion

This study employed Norman's Emotional Design theory (visceral, behavioral, reflective levels) to compare audience responses to an animated and a live-action film depicting Lanyu weaving culture. Quantitative data showed significantly higher scores for the animation in: Visceral Level: Enhanced sensory engagement, particularly through sound/music. Reflective Level: Greater value reflection and emotional connection. No significant differences were found at the Behavioral Level, indicating that both media forms offered a similar level of informational clarity and process understanding.

The animation's stylized audiovisual elements more effectively stimulated immediate affect (visceral) and cultural meaning-making (reflective) than the more literal live-action presentation. These findings reinforce the idea that cultural storytelling through animation can powerfully enhance emotional resonance and convey identity.

Cultural communicators and educators should consider using animation to present traditional knowledge, as it supports both engagement and retention through emotional resonance. Cultural preservation initiatives can adopt emotionally driven media formats, such as animation, to connect younger audiences to Indigenous heritage in ways that are accessible, appealing, and respectful.

The sample was primarily composed of young adults, limiting the generalizability of results to broader age groups with different media preferences or cultural familiarity. Participants had limited prior knowledge of Lanyu culture, which may have affected their ability to interpret symbolic or reflective content, particularly in the live-action version.

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