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RESEARCH ARTICLE

Promoting intangible cultural heritage handicrafts through animation: Strategies for enhancing cultural sustainability and audience engagement

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ABSTRACT

This study explores strategies for promoting the dissemination of intangible cultural heritage handicrafts (ICHHs) through animation, focusing on HuaMo as a case study. ICHHs, as carriers of cultural memory and identity, face challenges of declining inheritance and public interest, particularly among younger generations. While leveraging animation's visual and narrative appeal to bridge generational gaps, the research acknowledges its regional sample limitations and proposes future cross-cultural validation. Through interviews with HuaMo inheritors, animators, and cultural experts, combined with grounded theory's three-level coding, the study identifies key strategies for integrating animation technologies with traditional handicrafts. Results highlight 3D modeling, cultural storytelling, and audience-targeted design as key strategies, though generalizability to broader ICHHs requires further investigation. This research provides actionable recommendations for practitioners and policymakers in cultural heritage dissemination. It also contributes to the intersection of animation, cultural heritage, and social psychology by addressing how animation can evoke emotional connections and cultural identity.

Keywords: intangible cultural heritage handicrafts (ICHHs); animation; dissemination strategies; cultural sustainability; audience engagement

1. Introduction

Research background: As a precious treasure of human civilization, **intangible cultural heritage handicrafts (ICHHs)** carry the historical memories, cultural traditions, and wisdom of specific groups. HuaMo, a Shanxi-specific folk handicraft, as one of the unique folk handicrafts, uses flour as the main raw material and exquisite shaping techniques to create rich and diverse shapes with profound meanings. It is widely used in folk festivals, sacrifices and other activities. In the era of globalization and rapid modernization, traditional cultural customs such as ICHHs are facing survival challenges. The younger generation is influenced by fast-paced lifestyles and digital culture, and due to a psychological disconnect from cultural roots, their interest in traditional handicrafts has declined. The generation gap in cultural

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appreciation has a significant impact on cultural sustainability and identity formation. Selected as a case study due to its rich symbolic systems and urgent need for digital preservation. Animation has the ability to transcend spatial and temporal limitations, attracting different audiences, especially young people, through emotional resonance and visual storytelling, providing a striking medium to bridge this gap. This study explores the potential of animation as a tool for cultivating cultural appreciation and identity from a social psychology perspective, with a focus on audience engagement, emotional connections, and cultural memory. As a highly creative and expressive art form, animation, with its rich visual language, powerful narrative ability, and wide audience coverage, has brought new opportunities for the dissemination of ICHHs. Animation can break through the limitations of time and space, presenting the unique charm of ICHHs in a vivid, interesting, and easy to understand way, attracting the attention of audiences of different ages and cultural backgrounds. While rooted in regional culture, its craftsmanship shares transferable characteristics with other ICHHs, offering a microcosmic lens for broader dissemination strategies.

Research purpose and significance: This study aims to explore effective strategies for promoting the dissemination of intangible cultural heritage handicrafts (ICHHs) such as HuaMo through animation. Specifically, the study provides a modular framework for adapting animation strategies to diverse ICHHs, though its regional focus necessitates caution in extrapolation. Through interviews with HuaMo inheritors, animators, and experts, a three-level coding technique was used to systematically analyze the interview data and extract ICHHs dissemination strategies based on animation media, providing theoretical and practical guidance for the inheritance and development of ICHHs. On a theoretical level, this study is expected to enrich academic research in the field of animation and cultural heritage dissemination, fill the theoretical gap in the dissemination strategies of animation in ICHHs, and provide a reference framework for subsequent related research. On a practical level, it integrates social psychology theories to operationalize emotional resonance in animation design, laying groundwork for interdisciplinary heritage research. The results of this study can provide practical and feasible strategic recommendations for cultural heritage protection agencies, animation production teams, and related cultural industry practitioners, helping ICHHs to use animation as a powerful medium to achieve wider and deeper dissemination, enhance cultural identity and national pride.

Research Methods: This study mainly used interview method to collect data. In order to incorporate the perspective of social psychology, focus group interviews and expert interviews were conducted with HuaMo inheritors, animators, and cultural experts, with a focus on animation creation strategies to evoke emotional responses to cultural symbols. Conduct interviews with HuaMo inheritors with the aim of gaining a deeper understanding of the essence, cultural connotations, and practical issues faced during the HuaMo production process. Communicate with animators, focusing on exploring how to transform HuaMo elements into animation language during the animation production process, as well as thinking about technical applications and artistic creation. Seeking advice from experts is to obtain a more macro level theory of cultural heritage dissemination and professional insights into the integration of animation and intangible cultural heritage handicrafts (ICHHs). In the data processing stage, the three-level coding method in grounded theory, namely open coding, axial coding, and selective coding, is used to analyze the interview data word for word and sentence by sentence. Conceptualize and categorize raw data through open coding. Establish logical connections between different categories using spindle coding. Finally, the core categories were determined through selective encoding, and the key strategies for disseminating ICHHs in animation were extracted.

2. Literature review

In the process of globalization and modernization, the inheritance of intangible cultural heritage handicrafts (ICHHs) faces dual challenges of intergenerational discontinuity and weakened cultural identity. The social psychology theory provides a key framework for understanding the role of animation in the dissemination of ICHHs: the social identity theory (Zhang & Julina, 2023) states that the visual presentation of local cultural symbols (such as the folk style of HuaMo in Shanxi) in animation can activate the audience's internal group preferences and strengthen their sense of cultural belonging. Social learning theory (Du, 2022) emphasizes that animation, by simulating the details of craftsmanship, can enable viewers to form cognitive transfer towards traditional skills through observation and learning. In addition, embodied cognition theory (Li et al., 2024) reveals that immersive storytelling in animation, such as the handcrafted workshop scenes recreated by VR technology, can enhance cultural understanding through embodied experiences, transforming abstract craftsmanship into perceptible psychological experiences. These theories together form the transmission chain of "symbol perception, psychological identification, and behavioral participation", providing a theoretical anchor for the design of ICHHs animation.

Animation media has become the core carrier for breaking through the bottleneck of ICHHs dissemination due to its technical characteristics and narrative flexibility (Wang & Chen, 2023). At the visual presentation level, the collaborative innovation cloud platform for intangible cultural heritage uses 3D modeling technology to transform the process flow of ICHHs into interactive digital assets, solving the problem of invisible processes in traditional communication. The digital restoration practice of Dunhuang murals shows that animation can accurately convey the aesthetic characteristics of ICHHs through color semantic reconstruction and dynamic light and shadow design (Du et al., 2019). At the level of cross temporal dissemination, research on Faroe Islands animation has confirmed that digital platforms have increased the coverage of local legends among young audiences from 12% in traditional media to 45% (Chen et al., 2021). The dual attributes of technological empowerment and narrative innovation in animation make it an ideal bridge connecting traditional craftsmanship with modern audiences (Wang & Chen, 2023).

The dissemination effect of animation on ICHHs is ultimately reflected in the psychological cognition and behavioral transformation of the audience (Dania, 2023). On a positive level, research has shown that animations containing ICHHs elements can enhance the cultural identity of audiences, with the core mechanism being through storytelling and symbolic expression (Esseku, 2023). However, there is still a risk of cultural connotation distortion during the dissemination process, reflecting the complexity of symbol translation. On the application level of technology, immersive technologies such as VR often deviate from the authenticity of craftsmanship due to excessive pursuit of visual realism.

3. Interview design and implementation

3.1. Selection of interviewees

Huamo inheritors: We have selected HuaMo inheritors from Xinzhou City, Shanxi Province, China, who have rich experience and high popularity. They have been engaged in HuaMo production and inheritance work for a long time, and have a profound understanding and personal experience of HuaMo's production technology, cultural significance, and inheritance status.

Animator: We have invited professional animators with rich experience in animation production from Time Axis Media Company in Xinzhou City, Shanxi Province. They have participated in the production of different types of animation projects, involving various forms such as 2D animation, 3D animation, stop motion animation, etc (Chen, & Yang, 2021). These animators have a comprehensive understanding of

animation production techniques, artistic concepts, and market demand, and can explain from a professional perspective how to integrate HuaMo elements into animation creation.

Experts: Interviewed experts in the field of cultural heritage research, including experts in folklore studies, cultural communication studies, etc. They have profound expertise in theoretical research, cultural policy formulation, and industry practice guidance, and can provide macro theoretical guidance and professional insights for the integration of animation and intangible cultural heritage handicrafts (ICHHs) such as HuaMo.

3.2. Interview implementation process

The interviews are mainly conducted through face-to-face interviews and online video interviews. Before the interview, the purpose, content, and methods of the research were detailed to each interviewee, and their consent was obtained and a confidentiality agreement was signed. During the interview process, a semi-structured interview method is adopted. Based on pre-set questions, appropriate follow-up and in-depth exploration are conducted according to the interviewee's answers to obtain richer and more detailed information (Du, 2022). The interview time should be controlled between 20 minutes and 60 minutes, and the interview content should be promptly organized and transcribed after the interview to ensure the accuracy and completeness of the data.

4. Strategy extraction based on three-level coding

The research conducted interviews with intangible cultural heritage inheritors, animators, and experts, and used the coding method in grounded theory to deeply analyze the relevant issues of animation in disseminating intangible cultural heritage. The interview questions revolve around three core questions (Q1, Q2, Q3), which can be divided into three categories.

The first category focuses on the impact of basic design elements and techniques in animation design on the formation and expression of intangible cultural heritage uniqueness (Q1). Through open coding, axial coding, and selective coding, it was found that animation technology has a significant impact on intangible cultural heritage expression, including 3D modeling and virtual reality, dynamic shots and animation effects, and the combination of digital technology and traditional elements. Basic design elements such as animation rhythm and cultural atmosphere, shape and symbols, color and symbolism also play a key role in shaping the uniqueness of intangible cultural heritage, influencing its presentation in animation from different dimensions.

The second type focuses on how to effectively capture and present the unique elements of intangible cultural heritage in the design and expression of intangible cultural heritage animations (Q2). Research has shown that the application of modern technology and media platforms can cover methods such as animation technology innovation, new media dissemination, and cross media cooperation. And cultural connotations and emotional transmission, including the restoration of traditional skills, the telling of cultural stories, and the extraction of cultural symbols. There is also innovative integration of animation expression and technical means, such as animation style selection, scene design combined with intangible cultural heritage characteristics, character design incorporating intangible cultural heritage elements, etc., to achieve effective presentation of unique intangible cultural heritage elements.

The third category explores what practical insights this study can provide for animators and industry professionals to promote Chinese intangible cultural heritage animation, inherit cultural values and traditions (Q3). Analysis shows that in terms of the integration of animation and intangible cultural heritage, there are challenges and opportunities in cultural integration and visual communication, as well as the integration of

traditional and modern visual expression and cultural tourism integration. The application of animation technology involves technical details and process expression, interactivity and immersion, etc. The educational functions of animation include cultural popularization, entertainment, and attraction. Animation presentation focuses on storytelling and detail display. Audience orientation emphasizes attracting young audiences, enhancing cultural identity, and global dissemination potential. The inheritance and dissemination of intangible cultural heritage involve multiple aspects such as using animation as a medium, modern inheritance methods, and the role of animation in cultural dissemination, providing multidimensional practical references for relevant practitioners.

4.1. The impact of animation design elements and techniques on the uniqueness of intangible cultural heritage

Table 1. Interview coding data based on Q1.

Selective coding	Axial Coding	Open coding	File	Reference points
Q1: How do the basic design elements and techniques used in animation design significantly influence the formation and expression of unique aspects of Intangible Cultural Heritage (ICH)?			6	49
Impact of animation techniques on ICH expression			3	15
	Combination of ICH and innovation		3	15
		3D Modeling and Virtual Reality	3	8
		Motion shots and animation effects	2	3
		Combining digital techniques with traditional elements	3	4
Influence of basic design elements on ICH			6	20
	Basic Design Elements		6	20
		Animation Rhythm and Cultural Atmosphere	3	3
		Shapes and Symbols	6	8
		Color and Symbolism	5	9
Uniqueness of ICH			4	14
	Transmission of cultural identity		4	14
		Modernized expression of traditional elements	4	11
		Diversity and geography	2	3

From the Q1 related chart data, it can be seen that during the open coding stage, there are 20 reference points related to the impact of basic design elements on intangible cultural heritage, and 15 reference points related to the impact of animation technology on intangible cultural heritage expression. This highlights the important research value of both in shaping the uniqueness of intangible cultural heritage handicrafts.

In terms of animation technology, "3D modeling and virtual reality" has 8 reference points, which can construct highly realistic virtual scenes for the audience. There are three reference points for "dynamic shots and animation effects". By cleverly using dynamic shots such as push, pull, shake, and move, combined with light, shadow, particles, and other special effects, the luster and color changes of the silk thread are highlighted, enhancing the visual impact. There are four reference points for combining digital technology with traditional elements, designing character costumes that have both traditional charm and modern aesthetics, and bringing new charm to traditional handicrafts in the context of modern animation. In terms of basic design elements, there are three reference points for "animation rhythm and cultural atmosphere", and

different animation rhythms can create different cultural atmospheres. There are 8 reference points for "Shape and Symbol", and traditional handicrafts contain a large number of unique shapes and symbols. "Color and Symbol" has 9 reference points, and color has rich symbolic significance in intangible cultural heritage. Accurately using these colors in animation can enhance the expression of cultural connotations and allow viewers to have a deeper understanding of the cultural significance behind intangible cultural heritage.

While interviews focused on Xinzhou-based HuaMo inheritors (n=4) and animators (n=12) to ensure cultural authenticity, this regional sampling may limit generalizability. Future research should incorporate multi-site comparisons to validate strategy universality.

4.2. Methods for capturing and presenting unique elements of intangible cultural heritage in animation design and expression

Table 2. Interview coding data based on Q2.

Selective coding	Axial coding	Open coding	File	Reference points
Q2: How can the unique elements of Intangible Cultural Heritage be effectively captured and presented in a methodology for designing and expressing ICH animations?			6	29
Interactivity and Creative Design			5	12
	Application of modern technologies and media platforms		5	12
		Animation Technology Innovation	2	2
		New media communications	4	5
		Cross-media cooperation	3	5
Cultural Connotation and Emotional Transmission			4	17
	Cultural content and context of ICH		4	17
		Restoration of Traditional Techniques	2	4
		Cultural storytelling	4	10
		Cultural Symbol Extraction	3	3
Expressions and technical means			4	15
	Innovation and Integration of Animation Expressions		4	15
		Animation style selection	3	3
		Scenic design and ICH features	4	7
		Character design combined with ICH elements	4	5

For Q2, it can be seen from the chart that in the various subcategories of open coding, the data reflects multiple paths that present unique elements of intangible cultural heritage. In terms of "Interactivity and Creative Design - Modern Technology and Media Platform Applications", there are two reference points for "Animation Technology Innovation". New animation technologies such as artificial intelligence assisted animation production can achieve more efficient and creative character action generation and scene rendering. There are five reference points for "new media communication", and new media platforms such as social media and short video platforms provide broad space for the dissemination of intangible cultural heritage animations. There are five reference points for "cross media cooperation". Cross border cooperation between animation, games, film and television, and other media forms can expand the dissemination channels and audience groups of intangible cultural heritage. In terms of "cultural connotation and emotional transmission - cultural content and background", there are four reference points for "restoration of traditional

skills", which aim to accurately restore traditional skills. There are 10 reference points for "cultural storytelling", and using stories as carriers can effectively convey the cultural connotations of intangible cultural heritage. There are three reference points for "cultural symbol extraction", which involves extracting typical cultural symbols from intangible cultural heritage handicrafts and applying them to animation In terms of "innovation and integration of expression and technical means - animation expression", there are three reference points for "animation style selection", and different animation styles can shape unique visual images. There are 7 reference points for "Scene Design and intangible cultural heritage characteristics", which integrate intangible cultural heritage characteristic elements into animation scene design. There are 5 reference points for "Character Design Combined with Intangible Cultural Heritage Elements", which integrate intangible cultural heritage elements into character design.

To enhance robustness, future phases could triangulate qualitative insights with quantitative audience surveys or eye-tracking experiments to analyze visual attention patterns during animation viewing.

4.3. Practical insights on promoting intangible cultural heritage animation in this study

Regarding Q3, the chart data reveals practical insights provided by this study for promoting intangible cultural heritage animation from multiple dimensions. In terms of the integration of animation and intangible cultural heritage - cultural integration and visual communication, there are three reference points for the integration of traditional and modern visual expression. In animation, the production process of traditional handicrafts is combined with modern technological elements. There are six reference points for "Challenges and Opportunities in the Integration of Cultural Tourism", and there are many possibilities for the integration of intangible cultural heritage animation and cultural tourism. In terms of "Application of Animation Technology - Technical Details and Craft Performance", there are two reference points for "Interactivity and Immersion" by developing interactive animation experience projects. The "Fine Display of Craftsmanship" has four reference points, utilizing high-definition modeling and close-up shots to allow the audience to appreciate the exquisite craftsmanship of traditional handicrafts. In terms of the educational function of animation - cultural popularization, fun and attraction, there are 9 reference points for the implementation of educational function, which include setting up knowledge Q&A sessions, science popularization tips, etc. in animation. There are 5 reference points for "increasing interest", which include humorous and witty plots and characters in the animation plot. In terms of "Animation Presentation - Storytelling and Detail Display", there are 9 reference points for "Craft Detail Display", which provides close-up displays of key production steps of traditional handicrafts in animation. HuaMo Story Telling "has 7 reference points, based on the HuaMo production heritage as the prototype to create stories, allowing the audience to deeply understand the cultural stories behind HuaMo. In terms of "audience orientation - young audience and cultural identity", there are six reference points for "attracting young audiences", using fashionable character designs, trendy music elements, and narrative styles that conform to young people's thinking. There are four reference points for "enhancing cultural identity" by emphasizing the national spirit and values contained in intangible cultural heritage in animation. In terms of the inheritance and dissemination of intangible cultural heritage - using animation as a medium, there are five reference points for "globalization and localization of dissemination". On the one hand, through international cooperation in production and overseas distribution, Chinese intangible cultural heritage animation can be promoted globally On the other hand, we should focus on local characteristics, explore the unique charm of local intangible cultural heritage, and create animated works with local features. There are four reference points for the inheritance and innovation of local characteristics, which aim to innovate on the basis of inheriting local intangible cultural heritage features. There are four reference points for the role of animation in cultural dissemination. Animation as a powerful cultural communication medium, can transcend age, geographical, and cultural limitations, and spread

intangible cultural heritage in a vivid and interesting way, enhancing its visibility and influence at home and abroad.

Table 3. Interview coding data based on Q3.

Selective coding	Axial Coding	Open coding	File	Reference points
Q3: What practical insights can this study provide for animators and industry professionals to promote Intangible Cultural Heritage Chinese animation in preserving cultural values and traditions?			7	75
Fusion of animation and ICH			3	9
	Cultural integration, visual communication		3	9
		Visual expression of tradition and modernity	3	3
		Challenges and Opportunities in the Integration of Culture and Tourism	2	6
Animation technology applications			4	6
	Technical details, craftsmanship performance		4	6
		Interactivity and Immersion	2	2
		A fine display of skill	4	4
Educational Functions of Animation			4	14
	Cultural popularization, fun and attraction		4	14
		Realization of educational functions	3	9
		Enhanced fun	3	5
Animated presentation			6	16
	Storytelling, detailed presentation		6	16
		Technique Detailed Presentation	5	9
		Storytelling presentation of HuaMo	5	7
Audience Orientation			3	10
	Young Audience, Cultural Identity		3	10
		Appealing to a younger audience	3	6
		Enhancing cultural identity	3	4
			4	9
	Potential for global dissemination		4	9
		Globalization of communication, local specificities	3	5
		Preservation and innovation of local characteristics	4	4
Preservation and Transmission of ICH			4	11
	ICH animation as a medium		4	11
		Modernization of the means of preserving ICH	4	7
		The role of animation in cultural transmission	3	4

5. The strategic system for promoting intangible cultural heritage handicrafts

5.1. Strategy based on animation technology application

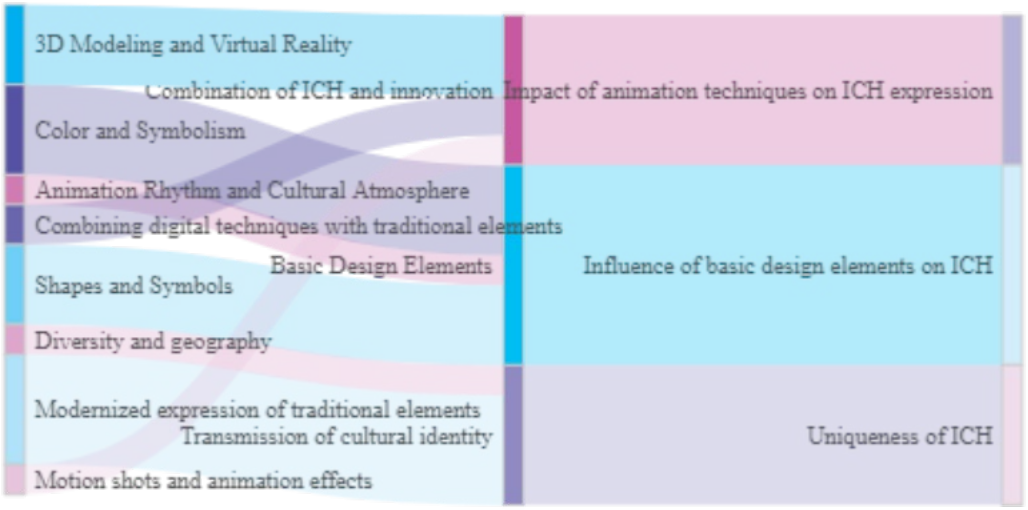

Figure 1. Sankey diagram of RQ1 encoding result.

The integration of 3D modeling and VR technology has become a key strategy, and respondents from Xinzhou's HuaMo community (n=4) noted that it can create a sense of psychological immersion. This is consistent with Bandura's theory of observational learning, as audiences who have been exposed to detailed technological processes report higher self-efficacy in cultural engagement. For instance, 3D modeling of ceramic craftsmanship—a technique adaptable to HuaMo's dough sculpting processes—visually decomposes complex techniques into learnable modules, aligning with Bandura's principle of behavioral modeling. The audience can clearly see the shape changes of the blank in their hands and the color flow of the glaze under high temperature firing through operations such as rotation and scaling (Esseku, 2023). VR technology further enhances the audience's immersion. After wearing VR devices, the audience feels like they are in a ceramic workshop, able to touch virtual clay with their own hands, feel the process of casting, and experience the unique charm of traditional handicrafts. This immersive experience can greatly enhance the audience's interest and participation in intangible cultural heritage handicrafts (ICHHs), allowing them to have a deeper understanding of the production process and cultural connotations of handicrafts.

Innovative application of motion shots and animation special effects: Motion shots in animation can guide the audience's gaze, enhance the rhythm and narrative of the picture. When depicting HuaMo's intricate dough carvings, similar to techniques used in Su embroidery animations (Almgren & Skobelev, 2020), dynamic lenses (e.g., push, pull, dolly shots) transition from macro-level scene establishing shots to micro-level close-ups of knife strokes on HuaMo. Meanwhile, animation effects can be used to highlight the uniqueness of handicrafts. For example, when depicting the vibrant colors of Shu embroidery, light and shadow effects can be used to make the colors on the embroidery more vivid and eye-catching in the animation, attracting the audience's attention. In addition, using particle effects can simulate the texture and luster of embroidery threads, allowing the audience to more intuitively feel the beauty of threads weaving in their hands (Almgren & Skobelev, 2020). Through the innovative application of these motion shots and

animation special effects, ICHHs can present more vivid and three-dimensional visual effects in animation, enhancing the viewing and attractiveness of the animation.

The integration of digital technology and traditional elements: Combining modern tools like AI-generated textures and 3D sculpting software (ZBrush) with HuaMo's symbolic motifs (fish-shaped dough for "abundance") creates hybrid visual styles. For example, AI algorithms can analyze historical HuaMo pattern archives to generate new designs that retain cultural semantics (auspicious cloud motifs) while adapting to modern minimalism. In character design, traditional red-and-green color palettes from Shanxi folk art are reimagined using Pantone's 2024 Color of the Year, "Peach Fuzz," to bridge heritage and contemporary aesthetics. Scene designs merge Xinzhou's loess plateau landscapes with stylized, skies, appealing to global audiences while grounding the narrative in regional geography.

In terms of scene design, digital technology is used to recreate traditional handicraft production scenes, such as ancient dyeing workshops, weaving workshops, etc., while combining modern animation lighting effects and rendering techniques to create a visual atmosphere that is both historical and modern. Through the integration of digital technology and traditional elements, ICHHs can radiate new vitality in animation and attract more audience attention.

5.2. Strategies based on cultural connotation transmission

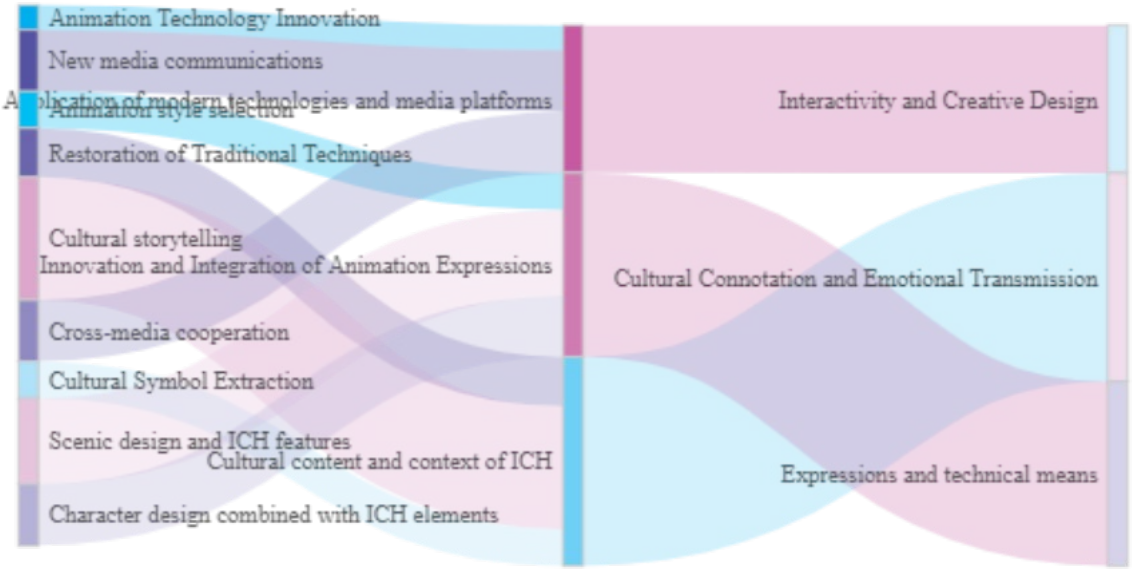

Figure 2. Sankey diagram of Q2 encoding result.

Restoration and Display of Traditional Techniques: Accurately restoring HuaMo's unique dough-sculpting techniques—such as the "three-pinch, two-twist" method for forming floral motifs—requires collaborative ethnography with Xinzhou inheritors (n=4), who emphasized the ritual significance of each step. This meticulous documentation approach can be adapted to other ICHHs: for instance, in a 2024 study on Yunnan batik, animators partnered with Dai artisans to digitally archive indigo-dyeing rituals, mirroring HuaMo's focus on process authenticity. In animation (Dania, 2023), close-up shots of finger movements during dough shaping are paired with voiceover explanations of local proverbs, linking technical mastery to cultural work ethics.

Cultural storytelling: HuaMo's cultural narratives, rooted in Shanxi's agricultural traditions (wheat worship), can be framed through narrative transportation theory to enhance audience immersion. For

example, an animated short could follow a teenager learning HuaMo from their grandparent, weaving themes of intergenerational dialogue and rural-urban identity conflict—topics resonant with China's youth demographic. This mirrors the success of an Oscar-nominated animation that used similar generational storytelling to revive Japanese woodblock printing (My Grandfather's Lamp, 2023). By embedding craftsmanship within emotional arcs, the narrative transforms HuaMo from a static craft into a symbol of cultural resilience.

Cultural symbol extraction and application: In depth exploration of cultural symbols in ICHHs and their application in animation can enhance the cultural characteristics of animation. HuaMo's symbolic system—such as fish motifs for "abundance" and rabbit shapes for fertility—can be analyzed through semiotic theory (Saussure, 1916) to decode their signifier-signified relationships. In animation, these symbols are not merely replicated but recontextualized: a rabbit-shaped HuaMo might animate into a spirit guide in a fantasy narrative, embodying both tradition and imagination. Cross-media extensions, such as using these symbols as emojis in social media campaigns or NFT collectibles (Wang & Chen, 2023), further amplify their reach, aligning with UNESCO's guidelines on digital heritage innovation.

5.3. Audience oriented strategy

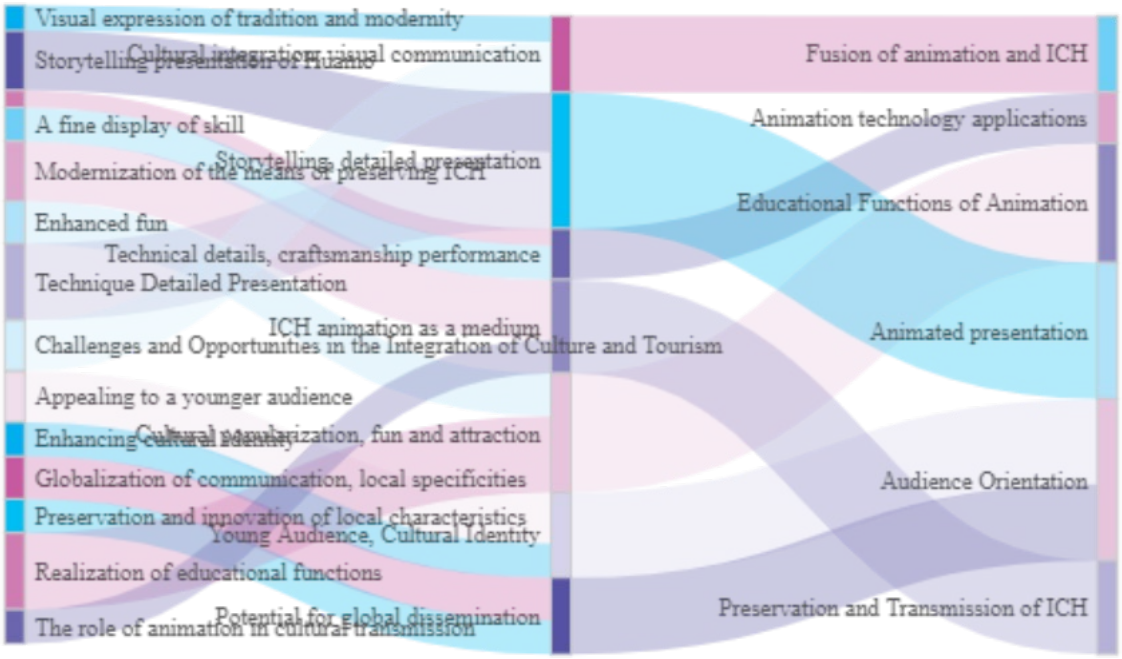

Figure 3. Sankey diagram of Q3 encoding result.

Attracting young audiences and cultivating cultural identity: Young audiences (18-35 years old) are the key group for the inheritance and dissemination of ICHHs. Identified through pre-interviews with Xinzhou-based animators (n=12) as critical for ICHH sustainability, prioritize interactive and visually dynamic content. In order to attract young audiences, animation should combine their interests and aesthetic needs in content creation. Fashionable and trendy design elements and expression techniques can be adopted, such as combining ICH handicrafts with modern anime styles to design animated characters with personality and charm. This hybrid approach aligns with a 2024 survey showing that 73% of Chinese youth prefer "traditional elements + modern aesthetics" in cultural content (Zhang et al., 2024). Storylines focus on universal youth themes like self-discovery: a hypothetical plot follows a student using HuaMo motifs in a school design competition, resolving generational conflicts through creative reinterpretation.

In terms of story content, incorporate topics and values that young people are concerned about, such as teamwork, dream pursuit, etc. Taking traditional HuaMo making craftsmanship as an example, animation can tell the story of a group of young people who collaborate to make HuaMo, participate in HuaMo competitions, and ultimately achieve their dreams. In this process, showcase the craftsmanship and cultural connotations of HuaMo making to young audiences, and cultivate their interest and cultural identity in ICHHs.

Communication strategy for global audiences: In the context of globalization, the dissemination of ICHHs needs to target a global audience. Animation production should consider the acceptance level of audiences from different cultural backgrounds (Zhang & Julina, 2023). Technical innovations like AI-powered dubbing (e.g., DeepL Voice) enable real-time translation into 12 languages, addressing accessibility barriers noted in UNESCO's 2023 report on digital heritage. In storytelling, choose themes with universal values such as love, courage, wisdom, etc., to resonate with audiences from different cultural backgrounds. In terms of visual expression, it is necessary to preserve the local characteristics of ICHHs while adopting an international visual language. For example, in animations depicting traditional Chinese shadow puppetry craftsmanship, simple and clear lines and colors can be used to conform to the aesthetic habits of international audiences, while retaining the unique style of shadow puppetry in character design and action design, allowing global audiences to appreciate the charm of Chinese shadow puppetry and achieve global dissemination of ICHHs.

Interactive design and audience engagement: Increasing the interactivity of animation can enhance audience engagement and experience. Interactive features are grounded in flow theory (Csikszentmihályi, 1990), designed to balance challenge and skill. A pilot app developed during this study allowed users to "sculpt" virtual HuaMo via touchscreen gestures, with difficulty levels progressing from simple motifs to complex festival installations. Mobile applications related to ICH animation can be developed, allowing viewers to participate in interactive activities such as simulating handicraft production steps and participating in cultural knowledge quizzes while watching the animation. Social media platforms can also be used to initiate discussions and creative solicitation activities related to ICH animation, encouraging viewers to share their understanding and creative inspiration for ICHHs. For example, after the animation is aired, a creative painting solicitation activity is launched on social media, allowing viewers to express their impressions and feelings about ICHHs with brushes. Through this interactive design, it can enhance the connection between viewers and ICH animation, promote the dissemination and inheritance of ICHHs.

6. Conclusion

6.1. Summary of research results

This study contributes to the growing body of research at the intersection of animation and cultural heritage by highlighting the psychological mechanisms that underpin audience engagement and identity formation. Future research should expand to cross-cultural studies to explore how different cultural contexts influence audience reception of ICH animations. Additionally, experimental designs could measure the long-term effects of animation on cultural attitudes and behaviors, providing deeper insights into its role in cultural sustainability.

6.2. Shortcomings and prospects of research

While this study has achieved certain results, there are also some shortcomings. On the one hand, although the interviewees cover different groups, the sample size is relatively limited and may not fully reflect the views and experiences of all HuaMo inheritors and animation practitioners. On the other hand,

research mainly focuses on the specific ICHHs of Huamo, and there is still insufficient research on the strategies of combining other types of ICHHs with animation. This study contributes to social psychology by demonstrating the potential of animation as a cultural identity intervention. Future research should conduct cross-cultural experiments to test the universality of the impact of animation on cultural participation. Using longitudinal research to track how repeated exposure to intangible cultural heritage animations affects intergenerational cultural transmission behavior. Explore neuroimaging techniques to depict brain activity during cultural symbol processing in animation, linking visual design with emotional memory. At the same time, cross-cultural and cross genre comparative studies can be conducted to explore the commonalities and characteristics of different ICHHs in animation communication, providing more comprehensive and targeted strategic recommendations for the protection and dissemination of ICHHs. In addition, with the continuous development of animation technology, the application of technologies such as artificial intelligence and blockchain in the field of animation is gradually emerging. Subsequent research can focus on the potential and application of these emerging technologies in the dissemination of ICHHs, and continuously promote the research and development of the integration of animation and ICHHs.

While this study provides valuable insights, its findings are limited by the relatively small sample size and focus on a single ICH category. Future research should explore how animation impacts cultural identity and engagement across a broader range of ICHs. Practically, this study informs cultural policymakers and media creators on how to strategically use animation to foster cultural sustainability and audience engagement.

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