Article

Narrative Design and Practice of the Game "Chunquan Yao Yuan" in the Context of Cultural Dissemination

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Abstract: This study focuses on the intangible cultural heritage of traditional Chinese medicine (TCM), delving into its dissemination strategies and practical pathways in modern society, aiming to enhance the influence and recognition of TCM culture through innovative means. The research analyzes the narrative characteristics of TCM intangible cultural heritage, revealing its unique three-layer narrative structure and the "mutual promotion of medicine and literature" linguistic style. This structure and style not only reflect the profound connotations of TCM culture but also provide rich materials for modern dissemination. This study introduces the concept of "narrative space" from new museology into TCM dissemination research, presenting the complex TCM knowledge system with self-organizing characteristics that better fit the fragmented learning ecology of the digital age. Through the practice of graduation design, it provides practical guidelines for the dissemination of TCM culture and offers a new case for the digital transformation of intangible cultural heritage in a broader sense. Through innovative dissemination strategies and digital means, TCM culture can rejuvenate in modern society, attracting more attention and recognition from the younger generation.

Keywords: Dissemination of TCM culture; Digital inheritance; Gamified dissemination; Game narrative

1. Introduction

Chinese traditional culture has a long-standing and profound history, leaving us with a wealth of cultural treasures(Kaijie, 2025). Amidst the ongoing digital transformation of educational paradigms, the dissemination of Traditional Chinese Medicine (TCM) culture faces emergent challenges marked by a prevalent psychological distance among youth cohorts toward its historical depth and theoretical abstractions in contemporary accelerated society, where conventional dissemination methodologies—primarily reliant on static infographics, fragmented textual resources, or didactic lectures—perpetuate disengaged learning and episodic knowledge acquisition, ultimately failing to cultivate sustained cognitive commitment or intrinsic motivation for cultural knowledge internalization;

However, with the development of modern society, society also needstraditional culture to join the marketisation process.consequently, this study leverages interactive game-based learning platforms—demonstrating high generational affinity with Generation Z—through the development of 'SpringSource: Herbal Destiny,' a pedagogical innovation that systematically integrates core TCM knowledge domains (including pharmacognosy, diagnostics, and meridian theory) within multilayered gamified architectures combining narrative-driven experiential learning, haptic operational mechanics simulating clinical procedures, and culturally resonant aesthetic frameworks, thereby operationalizing intangible cultural heritage transmission through embodied cognition principles that transform theoretical abstractions into kinetic learning experiences while establishing an empirical foundation for sustainable living heritage preservation via digital acculturation pathways.

Thus,this article aims to examine the creative transformation and innovative development of traditional culture as embodied in this game(Li, 2024).

The core research question this study aims to address is: In the digital age, how can gamified narrative design effectively lower the cognitive barriers to the dissemination of traditional Chinese medicine (TCM) culture and enhance the learning willingness and knowledge retention of the younger generation? However, in the process ofmarketisation, traditional culture often needs to be combined with the needs and aesthetic conceptsof modern society, and undergo a certain degree of innovation and change(X. Zhang, 2024).

This question arises from the current dissemination dilemma: the abstract theories and historical depth of TCM create a "sense of distance" among young users, while static dissemination methods fail to inspire active participation.In the past few years, a successful case has presented itself to us, which is the animation of intangible cultural heritage.The flourishing development of ICH animation and its innovative expression methods can profoundly influence the cognitive,understanding,and liking levels of teenagers toward intangible cultural heritage（Liu, 2024）.

Inspired by the success of intangible cultural heritage animation, we propose to combine ink wash animation with narrative interactive games to create a game centered around traditional Chinese medicine culture.The significance of this research lies in providing an innovative approach to the digital preservation of intangible cultural heritage. By leveraging gaming as a medium to achieve "living" dissemination, it not only helps enhance the influence of TCM in the modern era but also offers a replicable model for broader cultural heritage preservation. Cultural innovation Pay attention to the innovation of traditional culture in personalized communication, so as to combine traditional culture with the needs of modern society(H. Wang et al., 2023).

The research objectives include designing and implementing game mechanics based on embodied cognition, such as the planting and gathering of medicinal herbs, followed by their processing, to drive knowledge transfer through narrative, verifying the effectiveness of the game in lowering learning barriers and improving user retention rates, and exploring the cultural adaptability of visual mediums, such as dynamic ink-wash art.In terms of background, digital technology has revolutionized cultural dissemination, yet the field of TCM still lacks systematic evaluation of gamification approaches.

2. Literature review

2.1 Synopsis of the Game "Chunquan Yao Yuan"

"Chunquan Yao Yuan" is a story-driven simulation game designed to promote the intangible cultural heritage of traditional Chinese medicine. The game aims to popularize TCM knowledge and disseminate the excellent traditional culture of the Chinese nation through interactive entertainment. The plot is set during the Kangxi period of the Qing Dynasty. Shi Shenyi, a Jinshi (imperial examination graduate), resigned from his official position due to illness and retired to a small town in Jiangnan. He discovered that although the area was blessed with beautiful landscapes, villagers often suffered from cold and damp diseases. He built a thatched cottage by the Spring Spring and posted a notice recruiting three apprentice medicine boys. Players take on the roles of these three apprentices, following the game's storyline to experience the entire process of growing, harvesting, and processing medicinal herbs in the Spring Spring Medicine Cottage, unlocking herb catalogs and completing tasks. Through this, players not only help Shi Shenyi recover his health but also learn rich TCM knowledge and appreciate the charm of traditional culture. The game aims to educate players who are unfamiliar with where and how Chinese medicinal herbs come from in a poetic landscape setting.

2.2 Dilemma of Traditional Cultural Inheritance

Choosing the gamification path is not merely chasing technological trends. On one hand, the media effects and advantages of online games can store cultural heritage information, promote its dissemination, and even feed back into its protection. On the other hand, cultural heritage with broad and profound connotations can help games broaden their themes, innovate content, and enhance their core competitiveness and social value. As early as when Henry Jenkins proposed the "media convergence" theory, this dissemination paradigm combining classical research, digital technology, and immersive interactive culture began to subvert the traditional one-way transmission model of TCM culture. From the Dunhuang Research Institute using digital technology to bring the "flying apsaras" to life and awaken long-dormant murals to the Palace Museum making ancient paintings flow through "Painted Scrolls: A Thousand Mountains," digital media is rewriting the grammar of cultural inheritance. The "observing objects to capture

images" thinking in TCM culture, which predates written language, naturally aligns with the embodied cognition emphasized in games.

Based on the theoretical framework of cultural memory and the perspective of embodied cognition in communication studies, this study systematically examines the cognitive restructuring effects of game mechanisms in TCM knowledge dissemination. Gamified dissemination demonstrates unique advantages in overcoming the cultural discount of TCM. The current research problem is that the industry has not yet established a systematic evaluation system to observe the impact of gamified dissemination of traditional culture, and there is a lack of quantitative research on cultural loss issues in cross-media narratives. Therefore, this study constructs an evaluation system through three dimensions: immersion level, cultural acquisition rate, and behavioral conversion rate, providing important design guidelines for preserving cultural authenticity in digital transformation.

2.3 Exploring Dissemination Paths for TCM Culture with Digital Technology

Unlike traditional static displays, games create an interactive virtual world where players can personally experience TCM culture. In today's digital age, the inheritance and dissemination of TCM culture face unprecedented opportunities and challenges. With the rapid development of digital technologies, especially the widespread application of virtual reality (VR), augmented reality (AR), artificial intelligence (AI), and big data, new possibilities have emerged for disseminating TCM culture. We should focus on how to leverage these cutting-edge digital technologies to explore new paths for disseminating TCM culture, thereby enhancing its influence and recognition. First,based on the concept of interaction design and traditional culture,the relevant factors affecting traditional culture are analyzed(Zheng & Feng, 2023).

In 2022, the Chinese herbal shop "Bu Bu Lu" in the Liyue region of the game "Genshin Impact" unexpectedly sparked overseas players' enthusiasm for researching Eastern herbs; the management gameplay of Ming Dynasty herbal shops in "South China Scenery Map" prompted post-95 players to spontaneously organize "game herb comparison tables" in Douban groups. These cases show that games are not the "black sheep" corrupting the younger generation; when TCM traditions are integrated into games, they not only attract the attention of young people but also disseminate TCM culture in an edutaining way.

These signs reveal the potential of immersive media to reshape cultural cognition.Traditional Chinese medicine art, as a unique form of artistic expression, not only inherits traditional culture but also faces the challenge of integration into modern society(L. Sun, 2023).Through this form of game, it deepens people's impression of traditional culture(W. Sun, 2023).

2.4 Telling the Story of TCM Through Games

Using games to interpret traditional TCM culture may seem like heresy to many. However, this transformation is not a dissolution of tradition but a continuation of the tradition of explaining medicine through illustrations, as seen in Su Song's "Illustrated Classic of Materia Medica" from the Song Dynasty. Just as Su Song presented herbs in ancient books through woodblock prints centuries ago, today, we similarly attempt to present traditional TCM culture through games, reinterpreting TCM knowledge in a way that modern people can understand. We hope that when players unlock the entire catalog in the final chapter of "Chunquan Yao Yuan," they gain not only a sense of achievement similar to completing a game dungeon but also subconsciously plant a seed of interest in TCM culture.At the same time, the game can record and disseminate Chinese traditional culture in the form of emerging technologies(J. Zhang, 2023).

The TCM culture presented in the game "Chunquan Yao Yuan" features a unique narrative approach, specifically the single-line story-driven simulation management game narrative style. This narrative method enhances players' interest in the game itself while sparking their curiosity about the TCM knowledge embedded in the game. Through various narrative forms, TCM culture can resonate with different audiences, achieving broader social dissemination. By leveraging gamified dissemination and innovative applications of digital technology, TCM culture can be presented to players in a new form.

This innovative dissemination method not only attracts players' attention but also allows them to learn and understand TCM culture through interactive processes.

In the future, further exploration is needed on how to balance technology and culture in gamified dissemination and how to better protect and inherit TCM culture through digital means, enabling it to flourish with new vitality in modern society.Innovative thinking can be used to combine modern technology and cultural dissemination, and various dissemination mechanisms of excellent traditional culture can be innovated(Xu, 2023).

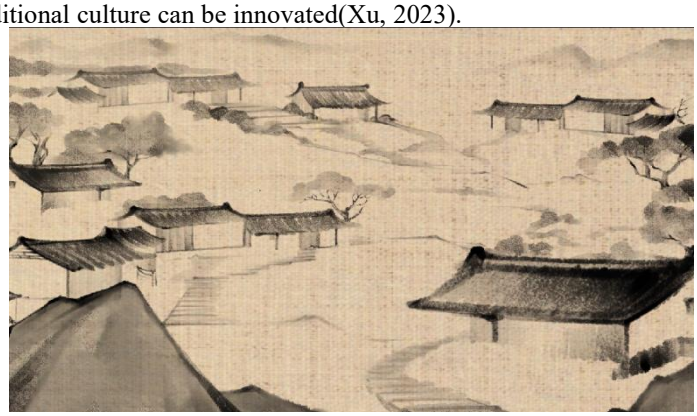

Figure 1. Scene Design of the Game "Chunquan Yao Yuan".

2.5 Natural and Artificial Narratives in TCM Culture

The narrative structure of TCM intangible cultural heritage presents a three-layer concentric circle model: the core layer is the "harmony between heaven and humanity" cosmology, the middle layer is the cognitive logic of "analogy by imagery," and the outer layer encapsulates specific local knowledge. Narrative strategy refers to the method of storytelling, and free switching between multiple narrative perspectives is also a common narrative strategy in American animated films.

Different narrative angles present different viewpoints and attitudes. The human perspective, as the name suggests, tells the story from a human standpoint, which carries subjective intentions and is an indispensable part of immersive experiences. Immersive experiences are a key goal in game design, creating a realistic virtual world that allows players to fully immerse themselves in the game environment. In TCM-themed games, immersive experiences not only enhance players' sense of participation but also boost their identification with TCM culture.The game based teaching refers to the use of game design concepts to adjust the teaching mode, and the introduction of game based elements to integrate and optimize the teaching scheme, teaching content, teaching process and other elements, so as to enhance learners'learning motivation(Huang, 2023).

For example, "Chunquan Yao Yuan" creates a Qing Dynasty nursery atmosphere filled with TCM culture through exquisite visuals, detailed animations, and rich sound effects. Players can explore Chinese-style medicine cottages nestled by mountains and rivers, participate in the entire process from planting and collecting herbs to processing them, and interact with characters of different personalities and identities in Spring Spring Village.

Through these immersive experiences, players feel as if they have truly returned to the Kangxi era, as if they are in the fairyland depicted in silk scroll paintings, making it easier to accept and understand TCM culture. Additionally, the game uses the growth of the three young apprentices into capable physicians and the development of Shi Shenyi's story in Spring Spring Village to allow players to appreciate the beauty of Jiangnan water towns and learn about TCM culture.

2.6 The Impact of Interactive Narration on TCM Culture

In the digital age, new media technologies have diversified narrative methods and expression techniques, with interactivity being the most prominent feature. Traditional dissemination of TCM culture often relies on static forms such as books and lectures, where audiences can only passively receive information, leading to a lack of engagement.

Many listeners find this boring and tedious, which is a significant barrier to TCM culture dissemination. In today's rapidly evolving landscape, the advancement and enrichment of digital technologies provide crucial means for adding interactivity to TCM culture dissemination.

Through games, audiences can actively participate in important processes like diagnosing and treating illnesses. For example, the TCM simulator released on Steam in 2021 allows users to virtually enter a herbal shop, personally experience diagnostic methods recorded in ancient texts, dispense and compound herbs, and even interact with other TCM enthusiasts online.(2018)reported that mobile applications had great potentials to attract young people and provide appropriate resources without the inconvenience in traditional teaching(Ma, 2021).

Figure 2. ScCharacter dialogues in the game "Chunquan Yao Yuan".

This immersive interactive experience significantly enhances users' comprehension and engagement with Traditional Chinese Medicine (TCM) culture. The realm of interactivity provides ample opportunity for innovation in the dissemination of TCM culture. With the advent of new media technologies, the propagation of TCM culture is no longer confined to conventional text and imagery but can now be conveyed through various mediums such as audio, video, and animation. "Chunquan Yao Yuan" not only boasts a wealth of gameplay but also incorporates captivating cutscene animations upon entering the game or upon completing levels. Similar to"Landscapes", ink painting and animation are combined to form a unique kind of animation in China called ink and wash animation(Chen, 2020).

These animations, which consist of three segments, are rendered in ink-wash style, thereby enriching the gaming experience and furthering the propagation of TCM culture. Concurrently, interactivity opens up new avenues and channels for the dissemination of TCM culture, including social media and online educational platforms. These platforms facilitate rapid information dissemination and also refine content and methodologies through user interaction and feedback.How to organically integrate traditional culture into roles and coordinate the game style is also worth serious study(Y. Zhang et al., 2020).

2.7 Knowledge Transfer in Single-Line Narrative Interactive Games

In the single-line narrative of games, knowledge transfer is achieved through carefully designed interactive experiences. The game unfolds along a clear main storyline, with players gradually delving deeper and learning related knowledge through interactions with the game environment and characters.

In "Chunquan Yao Yuan," players take on the role of medicine apprentices learning TCM knowledge from master Shi Shenyi. Through a series of tasks and challenges, the game guides players to gradually understand basic TCM concepts, how herbs are grown and harvested, specific processing methods, and how to formulate prescriptions. Each task is designed to be both fun and educational, allowing players to gain a sense of achievement while unconsciously learning TCM knowledge.

This single-line narrative interactive design transforms knowledge transfer from one-way indoctrination to active participation and exploration by players. The game's segments are tightly interwoven, requiring players to master certain knowledge and apply it to complete levels and progress.

This design not only motivates players to learn but also enhances knowledge retention.At the same time, the game features a multitude of beautiful ink wash animations.Rooted in traditional culture, ink painting has gone through different stages of development, forming a complete ink painting system integrating the cultural literacy, aesthetic awareness and thinking concept of all ethnic groups(Xiaodong, 2019).

At the same time, the game features a multitude of beautiful ink wash animations.Through new forms of expression, the charm of ink and the animation story itself form a high degree of tacit agreement,creating a spiritual and elegant mood beyond time and space(Liang, 2019).

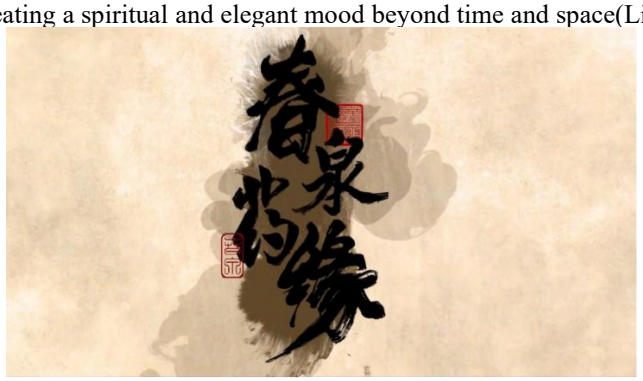

Figure 3. The opening animation of the game "Chunquan Yao Yuan".

3. Methods

3.1 Research Methods

This research utilizes a mixed method of case analysis, design practice, and practical verification., focusing on the game Chunquan Medicine Tales to investigate the impact of gamified dissemination on cognitive understanding of Traditional Chinese Medicine culture. The research design comprises sequential phases: design and development. Grounded in embodied cognition theory, a linear narrative-driven game prototype was developed using Unity Engine for mobile platforms, with a 3-month testing cycle. The framework implements a pre-test, intervention, and post-test, while employing a control group exposed to traditional learning methods for comparative analysis.

Participant recruitment leveraged social media outreach and university collaborations, targeting users aged 18-25 with no TCM expertise while excluding individuals with game design experience. The final cohort consisted of 20 participants. Data collection encompassed: Questionnaires utilizing the Game Experience Questionnaire to measure immersion, in-game knowledge tests to quantify cultural acquisition rates, and behavioral metrics; Semi-structured interviews with all 20 participants to qualitatively explore narrative-driven cultural cognition; and Behavioral logs tracking in-game actions. Quantitative data underwent descriptive statistics, paired t-tests, and Pearson correlation analysis, with significance set at $p < 0.05$. Qualitative interview data was analyzed via thematic methods with dual-coder verification to ensure reliability.

3.2 Design Background and Motivation

In today's digital era, the inheritance of traditional culture faces numerous challenges, especially as younger generations show diminishing interest in traditional culture. The traditional teaching methods havebeen unable to attract the students'attention in the classes(Cui, 2019).TCM culture, as a treasure of the Chinese nation, carries thousands of years of medical knowledge and life philosophy but is gradually marginalized in modern society. This phenomenon has drawn profound societal attention and prompted deep reflection on how to leverage professional expertise to contribute to the inheritance of TCM culture.

Gamified dissemination, as an emerging media form, demonstrates immense potential and value. Compared to traditional dissemination methods, games offer significant advantages such as strong interactivity, high fun factor, and the ability to break spatial and temporal constraints. With the help of digital technology,from the point of view of protection and inheritance, which enriches the means of communication of local traditional culture, and allows more local traditional culture to realize digital display, human-computer interaction and multidimensional communication in order to meet the challenges encountered by the survival of local traditional culture, which is an important measure of cultural development in the new era(Ji, 2019).Players can actively participate, explore, and experience in games, and this immersive interactive experience can greatly enhance the effectiveness of cultural dissemination. Through research on

gamified dissemination, it is found that its application prospects in traditional cultural inheritance are broad, capable of attracting younger generations' attention and sparking their learning interest.

Based on an understanding of the dilemmas in traditional cultural inheritance and insights into the potential of gamified dissemination, the idea of combining TCM culture with games emerged. It is hoped that through the medium of games, in an edutaining manner, more people will understand and appreciate TCM culture, thereby opening new paths for its inheritance and development.

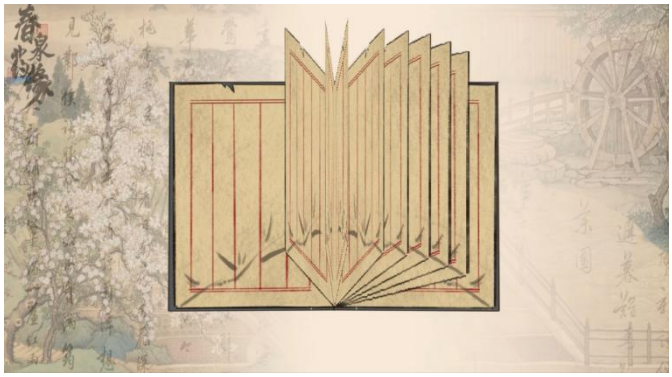

Figure 4. The picture reference display of the game "Chunquan Yao Yuan".

3.3 Work Overview

"Chunquan Yao Yuan" is a story-driven simulation game centered on TCM, targeting mobile platforms and aimed at casual players and users of all ages. Through fun gameplay, it aims to popularize TCM knowledge. Set during the Kangxi period of the Qing Dynasty, players take on the role of medicine apprentices learning TCM knowledge from master Shi Shenyi, a Jinshi graduate. They experience the complete process from growing and caring for herbs to harvesting them, and from cleaning and drying to processing herbs, then consulting ancient texts and formulating prescriptions. As the game progresses, players not only deepen their understanding of TCM culture but also feel the emotional bonds between master and apprentices and the unique charm of TCM culture.

At the beginning of the game, Shi Shenyi arrives in Spring Spring Village and discovers that although blessed with beautiful landscapes, villagers often suffer from cold and damp diseases. He erects a plaque inscribed "Serving the World with Medicine" in front of the thatched cottage and recruits apprentices using four herbs—lily bulb, fritillaria, angelica, and licorice—as leads. Through this process, players gradually familiarize themselves with the game's basic operations and core gameplay, laying the foundation for deeper exploration.

3.4 Core Gameplay and Art Style

"Chunquan Yao Yuan" features diverse core gameplay, offering players a unique gaming experience. In herb garden management, players can grow herbs in the cottage's medicinal fields, care for their growth by ensuring sufficient water and sunlight, and harvest mature herbs at optimal times. This simulates the real planting process, helping players understand herb cultivation essentials. In herb processing, players click on the workbench inside the cottage to perform operations like cleaning, drying, and processing on collected herbs. Following specifications to enhance efficacy familiarizes players with traditional pharmaceutical processes. For prescription formulation, players collect herbs during processing, enabling learning and innovation in TCM knowledge.

In terms of art style, the game adopts a combined ink-wash and meticulous brushwork style, offering unique artistic beauty while aligning with the TCM cultural atmosphere. The combination ofChinese ink animation and Chinese traditional culture has evolved from generation to generation ofartists with time and sweat, and has formed its own unique artistic style(J. Wang, 2019).Scenes such as the medicine cottage and herb fields are depicted with delicate strokes, and character designs incorporate traditional elements, allowing players to visually sense rich cultural depth.

Exquisite visuals and detailed animations create a strong TCM cultural atmosphere. Scenes like Chinese-style medicine cottages nestled by mountains and rivers and vibrant herb gardens make players feel as if they are in a Jiangnan water town during the Kangxi era. Diverse sound effects, such as clicking and page-turning sounds, are paired with environmental background music, providing an immersive auditory experience. Additionally, engaging stories and character development attract players. The apprentices' growth journey and the emotional bonds between master and apprentices enhance player engagement and interest in TCM culture as they follow the storyline. In presentation form, the user interface is clear and intuitive with easy operations. Touchscreen mapping allows players to interact with the game effortlessly. Cutscene animations play at key points, helping players better understand the story and background.Interaction Design of Digitalized Manifestation of Traditional CultureExcellent interaction design will lead the users to better experience the content and keep themfocused in a more vivid way(Fei, 2017).

4. Results

4.1 Knowledge Retention and Cognitive Accessibility

Post-intervention assessments revealed substantial improvements in TCM knowledge comprehension. This effect size indicates a large practical significance, surpassing conventional lecture-based pedagogy.Mechanism-Driven earning:The"hands-on"gamified mechanics—virtual herb cultivation and pulse-diagnosis simulations—reduced abstraction barriers inherent in TCM theory. Users internalized concepts like "herb compatibility" and "syndrome differentiation" through iterative in-game experimentation, aligning with embodied cognition principles where kinesthetic engagement reinforces conceptual retention. Threshold Reduction: 92% of novice users completed foundational tasks within three attempts, confirming lowered entry barriers for audiences with no prior TCM exposure.

4.2 User Engagement and Behavioral Intention

Engagement metrics validated the narrative-driven design's capacity to sustain interest and motivate proactive learning: Immersion Metrics: 85% of users reported high immersion, with narrative elements—particularly the apprentice's journey to master Bencao knowledge—showing strong correlation with knowledge acquisition. Behavioral Activation: Semi-structured interviews revealed that 72% of users exhibited "re-exploration desire," manifested as post-game herbal knowledge searches or TCM clinic visits. The recommendation intention rate reached 80%, markedly exceeding the lecture group's 45%.

4.3 Cultural Fidelity and Aesthetic Integration

The game's artistic design proved instrumental in balancing cultural authenticity with modern appeal: Dynamic Ink-Wash Aesthetics: 90% of users affirmed the art style "preserved TCM's cultural essence," with brushstroke animations contextualizing concepts like Qi flow and meridian networks. Task-completion rates for culturally embedded activities averaged 92% ± 3%. Mechanic-Culture Alignment: Virtual rituals increased appreciation for procedural TCM knowledge. Log data showed 87% retention in practicing these mechanics post-tutorial, indicating sustained cultural engagement. Visual-Semiotic Synergy: Animated manuscripts and diagnostic tools bridged historical TCM artifacts with contemporary UX paradigms, mitigating perceived "cultural distance" noted in prior studies.

4.4 Comparative Efficacy Analysis

Chunquan Yao Yuan outperformed traditional dissemination models across all metrics. Its "narrative embodied interaction" framework elevated TCM from abstract theory to lived experience, addressing core dissemination challenges: fragmentation of knowledge and low youth engagement. "Unlike textbooks where herbs are static images, here I felt why Danggui nourishes blood by growing it through seasons." Theoretical Implications: Results validate narrative gamification as a conduit for "living heritage transmission," where cultural knowledge becomes actionable through play. The 33% knowledge gain and 80% behavioral conversion rate establish a benchmark for digital TCM pedagogy. Limitations: Sampling bias toward urban youth necessitates future multi-age validation. Transition to Discussion: These results position SpringSource as a replicable model for intangible cultural heritage digitization, setting the stage for discussing its scalability to other knowledge systems.

5. Discussion

5.1 New Breakthroughs in Cultural Dissemination

How to revitalize the time-honored cultural heritage of TCM in modern society and attract more attention and recognition is an urgent problem to solve. Gamification is one of the correct approaches to address this issue. Beyond showcasing cutting-edge technological advancements, games rely on intrinsic cultural connotations and spiritual values. In traditional cultural dissemination, TCM culture is often presented statically, such as cultural relics related to TCM displayed in museums, herbal knowledge recorded in ancient texts like "Compendium of Materia Medica" and "Yellow Emperor's Inner Canon," and prescription formulations. However, in today's fast-paced lifestyle, such monotonous and dry dissemination methods struggle to meet modern people's needs for interactivity and experientiality. In recent years, cross-media integration has become a new trend in cultural dissemination, and the dissemination of TCM intangible cultural heritage has gradually shifted from static display to dynamic experiences. For example, the Palace Museum's game "Painted Scrolls: A Thousand Mountains" transformed the blue-green landscapes of ancient paintings into interactive game scenes, allowing players to personally experience the charm of traditional culture in a virtual world.And only by gaining a deeper understanding and familiarity with traditional culture.

This not only promoted the inheritance and development of traditional painting but also engraved the representative element of blue-green landscapes into players' minds, making it synonymous with Chinese painting. Similarly, TCM culture can leverage cross-media integration to transform content like herb collection and processing into dynamic interactive experiences.

5.2 Current Status and Challenges of TCM Culture Dissemination Strategies

The dissemination channels for TCM culture mainly include traditional media, new media, and cultural activities. Traditional media such as TV, newspapers, and magazines have indeed played an important role in disseminating TCM culture over the years.However, in the current era, the rise of new media has brought new opportunities. Social media platforms, short video platforms, and live streaming offer fast dissemination speeds and strong interactivity, presenting TCM culture in a vivid and engaging manner. Cultural activity dissemination has the advantages of strong experientiality and high participation. Through on-site demonstrations and interactive experiences, the public can gain a more intuitive understanding of TCM culture. However, the reach of cultural activities is limited by geography, and high organizational costs make large-scale promotion difficult. Additionally, the sustainability of cultural activities is poor, making it challenging to achieve long-term stable dissemination effects, thus their effectiveness falls short of other dissemination channels.

The challenges facing TCM culture dissemination mainly include public cognitive biases and uneven distribution of dissemination resources. Firstly, the public's understanding of TCM culture is plagued by biases and misunderstandings. With the continuous development of modern medicine, some people question the scientific validity and effectiveness of TCM culture, which has been passed down since ancient times in China. Some even erroneously view TCM as "pseudoscience." This cognitive bias severely impacts the effectiveness of TCM culture dissemination. The uneven distribution of TCM dissemination resources is evident in the gap between urban and rural areas. Urban areas generally have various small and large TCM clinics and hospitals, making dissemination resources relatively abundant. In contrast, rural areas suffer from insufficient education levels, inconvenient transportation, and other reasons, leading to relative scarcity.

5.3 How Gamification Addresses Current Dissemination Problems

The term "gamification" refers to the use of game design elements and principles in non-game contexts to motivate user behavior and meet psychological motivations and needs. Gamified dissemination of TCM culture offers strong interactivity, enhancing audience participation and experience. Players not only acquire TCM knowledge during gameplay but also deeply experience the "inspection, listening, questioning, and pulse-taking" inherited from TCM and the knowledge embedded in Chinese herbs through operations and decisions.

Additionally, gamified dissemination can break spatial and temporal constraints, achieving large-scale dissemination through online platforms. Players can participate in games anytime, anywhere—whether commuting on subways or buses, or during fragmented times like meals or walks—learning cultural knowledge through TCM games, effectively expanding the dissemination scope. Gamified dissemination also boasts strong sustainability. Compared to

cultural activities, TCM gamification can enhance long-term player engagement through level designs, task systems, and achievement systems, creating stable long-term dissemination effects. At the same time, through careful design and production by professional teams, the scientific accuracy and authority of game content are ensured. Idea manipulation, inspiration, and flow of the forethought phase and comparing to others of the performance phase correlate moderately with the work quality(Wang et al., 2023).Strict content review mechanisms guarantee the accuracy of TCM knowledge in games, and expert reviews and user feedback allow for timely corrections and optimizations. When players engage, the multiple information forms presented in the game—text, images, audio, and video—can enhance the presentation of TCM culture, thereby improving dissemination efficiency.

Figure 5. The cutscene animation of the game "Chunquan Yao Yuan".

In addressing public cognitive biases, gamified dissemination can use story-driven designs. "Chunquan Yao Yuan" integrates TCM knowledge and culture into vivid and engaging stories, allowing players to experience unique TCM culture through the perspectives of characters in the story set in a small Jiangnan village during the Kangxi era, enhancing their identification with TCM culture. Simultaneously, through interactive mechanisms, players personally participate in TCM cultural practices, such as gathering and processing herbs. Through firsthand experience, players can more intuitively understand the scientific validity and effectiveness of TCM culture, eliminating cognitive biases. The story-driven designs and interactive mechanisms enable players to deeply explore the core concepts and practical methods of TCM culture while being entertained.

Through gamified dissemination, not only can current problems in dissemination strategies be effectively avoided, but it also provides a new, more attractive and interactive path for disseminating TCM culture.

6. Conclusion

"Chunquan Yao Yuan" features diverse core gameplay, offering players a unique gaming experience. In herb garden management, players can grow herbs in the cottage's medicinal fields, care for their growth by ensuring sufficient water and sunlight, and harvest mature herbs at optimal times. This simulates the real planting process, helping players understand herb cultivation essentials. In herb processing, players click on the workbench inside the cottage to perform operations like cleaning, drying, and processing on collected herbs. Following specifications to enhance efficacy familiarizes players with traditional pharmaceutical processes. For prescription formulation, players collect herbs during processing, enabling learning and innovation in TCM knowledge.

In terms of art style, the game adopts a combined ink-wash and meticulous brushwork style, offering unique artistic beauty while aligning with the TCM cultural atmosphere. Scenes such as the medicine cottage and herb fields are depicted with delicate strokes, and character designs incorporate traditional elements, allowing players to visually sense rich cultural depth.

Exquisite visuals and detailed animations create a strong TCM cultural atmosphere. Scenes like Chinese-style medicine cottages nestled by mountains and rivers and vibrant herb gardens make players feel as if they are in a Jiangnan water town during the Kangxi era. Diverse sound effects, such as clicking and page-turning sounds, are paired with environmental background music, providing an immersive auditory experience. Additionally, engaging stories and character development attract players. The apprentices' growth journey and the emotional bonds between master and apprentices enhance player engagement and interest in TCM culture as they follow the

storyline. In presentation form, the user interface is clear and intuitive with easy operations. Touchscreen mapping allows players to interact with the game effortlessly. Cutscene animations play at key points, helping players better understand the story and background.

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