Research on the Mechanisms of Culinary Elements in New-Media Game Interaction

Daiyao Chen[1], Yijia Chen[2]
[1] Shenzhen Polytechnic University, Shenzhen 518055, Guangdong, China
[2] Anyang University, Anyang-si, Gyeonggi-do 14028, Korea

Abstract: This paper proposes an analytical path that runs from immersion construction to semantic dissemination, and then to cultural spill-over and ethical boundaries, arguing that food is no longer a decorative texture but a systemic module that can be "played–spoken–remembered–and-transferred." Four layers are distinguished to show how culinary assets graduate from prop images to narrative, memorable and portable systems. Theoretically, Ermi–Mäyrä's SCI model of immersive experience (Sensory–Challenge–Imaginative) is linked to the salience–memory–attitude chain of in-game advertising and brand placement, while the framework of "gastrodiplomacy" is introduced to explain how regional cuisines and ingredient genealogies, visualised through urban spaces and quest nodes, are converted into light popular science and everyday understanding. Finally, risks of food marketing to minors and stereotyping pitfalls are flagged, together with compliance and annotation strategies. The path offers a methodological reference for the presentation and international communication of Chinese food culture in domestic games.
***Keywords*:** food diplomacy, immersive foodcast, cultural breakout, gastro-power in gaming

1. Research Background and Problem Statement

Recent urban and survival games increasingly embed food into the core gameplay loop—such as stamina or mood recovery, short-term buffs, and social check-ins—and interact intertextually with live-streaming and short-video ecosystems. This integration allows "on-screen eating" to spill over into real-world recipe replication and restaurant visits. Everyday life studies also note that gaming, eating, and cooking are renegotiating time and sociability, providing a lived context for culinary dissemination (Jensen & Skelly, 2025)[1].

2. Theoretical Models: Immersion Mechanisms and Communication Psychology

Starting from immersion, Ermi and Mäyrä's SCI model (Sensory–Challenge–Imaginative) emphasizes the coupling of three channels: when food delivers authentic audio-visual feedback (e.g., sizzling sounds, steam, chewing facial animations), clear rule-based functions (mapping temperature, satiety, thirst, or mood), and is tied to character memory or urban narrative, players gain simultaneous presence and credibility across all three tracks. This translates "livedness" into "mechanics" (Ermi & Mäyrä, 2005)[2].

In the communication psychology pathway, memory for in-game objects and brands is driven by "salience" (size, position, frequency) and "quest relevance." A dish that is clearly named, repeatedly clickable, and richly feedbacked enjoys higher recall and recognition, providing quantitative grounding for "food as semantic anchor" (Chaney et al., 2018)[3].

3. The Triple Semiotic Turn of Food

In early digital games, food appeared as "HP packs" or "buff items," with semiotic functions limited to functional signification—numerical feedback (e.g., life regain, stamina boost) assisting task completion. As narratives grew more complex and players demanded deeper immersion, food transcended its role as mere consumable and took on cultural and affective significance.

In Genshin Impact, for example, "Squirrel Fish" restores HP, but its recipe origin, cooking animation, character voiceline, and flavor text compose a symbol-complex of "Jiangnan cuisine," activating players' memory and imagination of that region.

We therefore propose the Triple Semiotic Turn of Food to explain how culinary assets shift from "prop" to "cultural interface":

Functional Layer: Food as part of game mechanics, shaping player decisions via numerical feedback (hunger, stamina, mood).

Cultural Layer: Food tagged with regional cuisine, ingredient provenance, culinary ritual, becoming a badge of cultural identity (e.g., Justice's "Song-style whisked tea" in Nishuihan as a digital reenactment of Song-dynasty tea culture).

Affective Layer: Food linked to character memory, family narrative, or collective experience, evoking emotional resonance (e.g., Animal Crossing's "Mom's lunchbox" triggering associations of domestic warmth).

These three layers are not linearly stacked; they dynamically couple through interaction frequency and narrative depth. Repeated cooking of Genshin's "Pearl, Jade & White Jade Soup" naturalizes the cultural script "Jiangnan food = light & elegant." This semiotic shift is co-authored: on Reddit and Bilibili, players replicate real recipes, produce culinary lore videos, and cultural deep-dives, turning game symbols into discussable, portable knowledge—evidence of food as cultural interface.

4. Memory Mechanisms and Urban Rhythm Design

Early studies on in-game brand placement show that objects tightly integrated with quests or scenes are remembered longer; the same applies to "regional dish names + shop nodes" arranged in level flow (Nelson, 2002)[4]. High repetition × high familiarity boosts recall; hence "frequently seen everyday dishes + replicable menus" are more likely to be fan-created and checked-in (Martí-Parreño et al., 2017)[5].

At the urban rhythm level, "order–replenish–dialogue–sortie" cycles can be embedded into shop nodes, assembling a "taste geography."

5. International Communication: Gastrodiplomacy and Light Popularization

Zooming out to international communication, "gastrodiplomacy" offers a conceptual handle: taste experience as an entry point to stack "cuisine–ingredient–geography–ritual," fostering cultural affinity. Games' interactivity and everydayness fit light public diplomacy (Rockower, 2012)[6]. The newest academic dictionary stresses that food is a sub-medium of public diplomacy, suitable for non-coercive, weak-narrative contexts. Inserting "micro-biographies of regions / ingredient genealogies / city maps" into interactive cards and side-quests deposits cultural knowledge through play (Forman, 2024)[7].

6. Ethical Risks and Design Recommendations

Yet risks abound: in game-streaming contexts, recall of unhealthy-food marketing significantly correlates with adolescents' purchase/intake, mediated by attitude. This hints that high-sugar/high-fat items should not be core interactables (Evans et al., 2023)[8]. Meta-analyses show digital/celebrity food & beverage marketing to children and adolescents is significantly associated with multiple diet-related outcomes, supplying evidence for health guardrails such as nutrient warnings, ad disclosures, and parental mediation (Finlay et al., 2023)[9].

Design handles can be summarized as:

State-mapping: Differentiate dishes along satiety, temperature, thirst, mood, or buff dimensions;

Sensory feedback: Use sizzling audio, steam particles, and chewing facial rigs as memory triggers;

Semantic triad: Weld "taste descriptor + regional tag + micro-history card" so that "delicious" becomes "discussable";

Urban rhythm: Slot "order–replenish–dialogue–sortie" cycles into shop nodes, assembling a "taste geography."

These four handles map isomorphically onto SCI, aligning curriculum and R&D, while age-rating, ad disclosure, and parental prompts police the ethical perimeter.

7. Conclusion

Only when food is mechanized into a system that can be played, spoken about, remembered, and transferred does it serve its dual purpose of deepening immersion and facilitating cultural transmission. This systematic transformation enables a meaningful connection between players and the cultural elements embedded within food, allowing for a richer, more engaging experience. The four-dimensional framework of state–audio–visual–semantics–space comprehensively captures the essence of this process, guiding players to "taste culture" through active interaction.

By engaging with food in this structured yet imaginative manner, cultural values and traditions are not only preserved but also shared in a way that remains securely within ethical guidelines and health-conscious boundaries, ensuring both relevance and responsibility.

In the ever-evolving landscape of digital gaming, the integration of food as a cultural interface has opened up new avenues for immersive experiences and cultural exchange. The proposed four-dimensional framework provides a robust structure for designers to craft food-related content that is both engaging and meaningful. By meticulously mapping the state of dishes, incorporating sensory feedback, weaving semantic narratives, and constructing urban rhythms, games can transcend mere entertainment and become vessels for cultural education and appreciation.

This approach not only enhances the player's connection to the game world but also fosters a deeper understanding and respect for diverse culinary traditions. As players interact with food items, they are not just consuming virtual sustenance; they are embarking on a journey of cultural discovery, where each dish tells a story, evokes emotions, and connects them to a broader human experience.

Moreover, the ethical considerations embedded within this framework ensure that the portrayal of food in games remains responsible and health-conscious. By implementing age-rating systems, ad disclosures, and parental prompts, developers can safeguard against the potential negative impacts of unhealthy food marketing, particularly on younger audiences. This balance between creativity and responsibility is crucial in maintaining the integrity of games as a medium for cultural transmission.

In conclusion, the mechanization of food into a playable, discussable, memorable, and transferable system represents a significant step forward in the realm of digital gaming. It not only deepens player immersion but also facilitates a rich and nuanced cultural exchange. As the gaming industry continues to grow and evolve, the thoughtful integration of food as a cultural interface will undoubtedly play a pivotal role in shaping the future of interactive entertainment, ensuring that it remains both relevant and responsible in its cultural endeavors.

Acknowledgments

This article constitutes a stage deliverable of the Shenzhen Education Science "14th Five-Year Plan" 2024 Annual Project [Grant No. YB24036], titled "Dual-Creation-Driven Curriculum Innovation: Embedding Shenzhen's Food Heritage in Packaging Design Education". This work is supported by Projects of Education and Teaching Reform of the Teaching Steering Committee of Light Industry and Textile Majors in Guangdong Provincial Higher Vocational Colleges (No. 2022QGFZ06), and Research Foundation of Shenzhen Polytechnic under Grant 6022312025S.

References

[1] Jensen, K. H., & Skelly, T. A. M. (2025). Sociable desires and gendered commitments: Video gaming and food in everyday life. Convergence, 31(3), 1180–1198. https://doi.org/10.1177/13548565241270868

[2] Ermi, L., & Mäyrä, F. (2005). Fundamental components of the gameplay experience: Analysing immersion. In Proceedings of DiGRA 2005: Changing Views---Worlds in Play. https://dl.digra.org/index.php/dl/article/view/119

[3] Chaney, I., Hosany, S., Wu, M.-S. S., Chen, C.-H. S., & Nguyen, B. (2018). Size does matter: Effects of in-game advertising stimuli on brand recall and brand recognition. Computers in Human Behavior, 86, 311–318. https://doi.org/10.1016/j.chb.2018.05.007

[4] Nelson, M. R. (2002). Recall of brand placements in computer/video games. Journal of Advertising Research, 42(2), 80–92. https://doi.org/10.2501/JAR-42-2-80-92

[5] Martí-Parreño, J., Ruiz-Mafé, C., & Currás-Pérez, R. (2017). Product placement in video games: The effect of brand familiarity and repetition on consumers' memory. Journal of Interactive Marketing, 38, 55–63. https://doi.org/10.1016/j.intmar.2017.01.001

[6] Rockower, P. S. (2012). Recipes for gastrodiplomacy. Place Branding and Public Diplomacy, 8(3), 235–246. https://doi.org/10.1057/pb.2012.17

[7] Forman, J. M. (2024). Gastrodiplomacy. Oxford Research Encyclopedia of Food Studies. https://doi.org/10.1093/acrefore/9780197762530.013.18

[8] Evans, R., Christiansen, P., Masterson, T., Pollack, C., Albadri, S., & Boyland, E. (2023). Recall of food marketing on videogame livestreaming platforms: Associations with adolescent diet-related behaviours and health. Appetite, 186, 106584. https://doi.org/10.1016/j.appet.2023.106584

[9] Finlay, A., Jones, A., Maden, M., & Boyland, E. (2023). A systematic review and meta-analysis of the effect of digital game-based or influencer food and non-alcoholic beverage marketing on children and adolescents: Exploring hierarchy of effects outcomes. Obesity Reviews, 24(12), e13630. https://doi.org/10.1111/obr.13630