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Fostering Pedagogical Innovation: Theoretical Foundations for Developing a Gamified Chinese Folk Song Teaching Module for Primary School Education in China

Xu Caixia*, Professor Dr. Mohd Hassan Bin Abdullah, Dr. Abdul Rahman Bin Safian

Universiti Pendidikan Sultan Idris, Faculty of Music and Performing Arts

*Email: 541607412@qq.com

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Abstract

This paper explored the fundamental theoretical foundations underlying the design of a gamification-based teaching module on Chinese folk songs for primary school students in China**.** It first clarified the pressing need to safeguard Chinese folk songs as an essential part of national cultural inheritance and music education reform, highlighting how a gamified approach can respond to this challenge. By integrating insights from music pedagogy, cultural education, and gamification frameworks, the study highlighted the complexity and significance of constructing an effective and innovative teaching module aimed at enhancing engagement, cultural appreciation, and musical learning outcomes. The significance of this research lies in its potential to provide educators, curriculum designers, and policymakers with a replicable model that strengthens cultural identity, improves learning outcomes, and enriches music education nationwide. The paper offered an overview of the theoretical framework employed in designing a gamification-based teaching module on Chinese folk songs for primary school students in China, incorporating the ADDIE Model, the TPaCK Framework, Jean Piaget's Constructivist Learning Theory, Self-Determination Theory (SDT), the Theory-Driven Gamification Design Model (GAFCC), Lev Vygotsky's Sociocultural Theory, and the Cognitive Theory of Multimedia Learning. The ADDIE Model provided a systematic process for development, guiding the design, implementation, and evaluation phases to ensure that the gamified module was structured, adaptable, and aligned with learning objectives. The TPaCK Framework emphasized the integration of technology, pedagogy, and content knowledge in supporting music teaching. Piaget's Constructivist Learning Theory highlighted active engagement and exploration, while Vygotsky's Sociocultural Theory underscored the importance of collaboration and cultural context in learning folk songs. SDT emphasized intrinsic motivation, encouraging autonomy and engagement, and GAFCC offered a design model for embedding effective gamification strategies. Meanwhile, the Cognitive Theory of Multimedia Learning ensured the effective use of multimedia to enhance comprehension. Through the integration of these theoretical foundations, the study aimed to

construct a comprehensive, engaging, and culturally relevant gamification-based teaching module. The anticipated outcome of the module was to foster students' participation, deepen cultural appreciation, and improve musical learning outcomes, demonstrating the practical utility and effectiveness of gamified folk song education for both students and educators.
Keywords: Chinese Folk Songs, Gamification, Primary School Education**,** Pedagogical Innovation, Theoretical Framework

Introduction

Chinese folk songs represent an irreplaceable cultural treasure and a living record of the nation's collective memory. Preserving and revitalizing these songs is not only an artistic endeavor but also a strategic educational goal, as it strengthens cultural identity, promotes intergenerational heritage, and enriches music education. The inheritance of Chinese folk songs has been prioritized in national policy as a vital component of cultural continuity (General Office of the CPC Central Committee & General Office of the State Council, 2017). As historical and artistic expressions, folk songs embody the values, wisdom, and identity of the Chinese nation, serving as an important medium for cultural transmission.

However, in the context of globalization and digital media, students increasingly gravitate toward popular music styles, while traditional folk songs receive limited attention (An, 2022; Xu, 2022). This trend reflects a broader decline in cultural confidence and raises concerns about the weakening of national identity among younger generations.

Primary school education provides a critical stage for instilling cultural awareness and aesthetic appreciation. Although the *Music Curriculum Standards for Compulsory Education* (Ministry of Education, 2011) stress the role of music in preserving cultural heritage, current teaching practices remain largely teacher-centered, monotonous, and disconnected from students' lived experiences (Yi, 2022).

Therefore, there is a clear need for innovative, engaging, and effective teaching strategies that not only transmit folk songs but also inspire genuine student interest. Gamification offers a timely solution by transforming traditional music instruction into an interactive and motivational experience.

To revitalize folk song education, innovative pedagogical strategies are required. This study is significant because it responds directly to the urgent call for preserving cultural heritage in a way that is accessible and meaningful to today's young learners.

By integrating gamification, it aims to benefit students by increasing motivation and cultural appreciation, while providing educators and curriculum developers with a practical, research-based model to enhance instructional effectiveness.
Gamification, by combining cultural content with interactive learning, offers the potential to increase student engagement, foster motivation, and integrate national heritage with modern teaching practices.

Highlighting both the need and the benefits for students, teachers, and policymakers, this research underscores the utility and long-term impact of developing a gamified Chinese folk

song teaching module. This study explores the theoretical foundations for developing a gamified Chinese folk song teaching module tailored for primary school education in China.

Research Methods

Integrating gamification into Chinese folk song teaching for primary school students not only promotes the inheritance of traditional culture but also strengthens students' cultural identity and confidence. This pedagogical innovation enriches music education by combining cultural heritage with engaging learning strategies. However, historical emphasis on Western music education models in Chinese schools has often overshadowed the systematic inclusion of folk songs, leading to limited exposure to traditional music resources in the classroom.

Consequently, there was a pressing need to establish a gamified teaching framework that integrates Chinese folk songs into primary school curricula. Such an approach was designed to improve students' singing abilities, enhance musical literacy, and foster cultural awareness through interactive learning experiences. By embedding game mechanics into folk song learning, the framework aimed to raise motivation and encourage active participation among young learners.

Primary school students, especially those in urban areas, often showed stronger interest in popular music than in traditional folk genres. Despite this trend, national education policies and cultural development plans have consistently emphasized the importance of preserving and revitalizing Chinese folk music. One effective strategy to cultivate appreciation for traditional culture involved embedding folk songs into gamified learning modules, where points, badges, and collaborative activities supported cultural engagement and aesthetic education.

Research focusing on gamification in folk song education for primary students remained limited compared with studies conducted in general music pedagogy or secondary education. The distinct learning characteristics of children required specially tailored approaches that combined pedagogy, psychology, and cultural education. Challenges included insufficient age-appropriate resources, the need for interdisciplinary design, and the difficulty of sustaining engagement through conventional lecture-based music lessons.

Preserving folk music in primary education was crucial, as it reflected community history and collective identity. Addressing these challenges required innovative pedagogical methods, gamified mechanisms, and integration with modern educational technologies. This research sought to bridge these gaps by providing both theoretical foundations and practical strategies for developing a gamified folk song teaching module that enhanced cultural transmission and pedagogical innovation in China's primary schools.

Results and Discussion

Teaching modules are widely used in education to provide structured and interconnected learning experiences (Ries, 2016). Compared with fragmented lessons, teaching modules deliver broader and more integrated content, supporting the comprehensive development of students' knowledge, skills, and cultural literacy (Creemers et al., 2012). Therefore, developing teaching modules requires not only content compilation but also a systematic design process to ensure effectiveness.

Zhang (2011) proposed a three-stage process for module development: preliminary, development, and implementation. The preliminary stage involves identifying needs, clarifying objectives, and assessing feasibility. The development stage includes module design, content selection, and trial teaching. The implementation stage focuses on aligning learner needs with instructional strategies and delivering content systematically. Zhang emphasized ongoing monitoring and feedback throughout the process to adjust and improve the module.

Other scholars have designed discipline-specific modules to demonstrate the adaptability of modular teaching. Liu & Chen (2018) applied modular project teaching methods to environmental design courses, integrating basic and expansion modules into practical projects, Syahrianita & Kalsum (2025) developed the 'Easy Vocabulary' e-module for junior high students, emphasizing independent learning and interactive engagement, and Wang (2022) proposed a live-streaming marketing teaching module tailored to vocational training needs. These cases illustrate that modular design can be adapted across educational settings.

Recent research highlights the value of gamified approaches in primary music education. Hsiao and Chen (2016) found that gamified learning activities notably enhance students' motivation, engagement, and overall learning experience. Tek et al. (2021) emphasized that gamification strategies in primary classrooms promote immersive, cognitively rich learning environments. Embedding folk songs into elementary music curricula plays a critical role in cultural identity formation: Andrews (2011) argued that incorporating children's home culture folk music validates their cultural heritage in school contexts, and Peng et al. (2012) further stressed that educators are encouraged to design activities that use points and badges to boost student motivation and maintain long-term engagement.

For this study, focused on developing a gamified Chinese folk song teaching module for primary school students**,** the ADDIE model was selected as the guiding framework. Its structured phases—Analysis, Design, Development, Implementation, and Evaluation—are well suited to addressing both the pedagogical and cultural dimensions of folk song instruction. The iterative nature of ADDIE allowed adjustments during pilot teaching, such as refining song selection, balancing cultural authenticity with age-appropriateness, and modifying game mechanics based on feedback. This ensured the module was pedagogically effective, culturally meaningful, and engaging for young learners. Overall, adopting ADDIE provided a systematic and flexible pathway for integrating gamification into Chinese folk song education, strengthening students' musical skills, cultural awareness, and appreciation of traditional heritage.

Educational Theories Consideration

The development of a gamified Chinese folk song teaching module for primary school education required a robust and multi-dimensional theoretical foundation. Rather than relying on a single framework, this study integrated complementary perspectives from instructional design, technology integration, constructivist pedagogy, motivational psychology, gamification design, sociocultural learning, and multimedia cognition. Each of these perspectives provided distinct insights while collectively ensuring that the module was pedagogically innovative, culturally meaningful, and developmentally appropriate for primary school learners.

ADDIE Model: A Systematic Framework for Instructional Design

The ADDIE Model (Branch, 2009) served as the overarching framework for the development process. Its five phases—analysis, design, development, implementation, and evaluation—provided a structured yet flexible roadmap. During the *analysis* stage, learners' needs, prior knowledge, and cultural context were examined. The *design* stage translated these insights into clear objectives, content selection, and gamified strategies. In the *development* phase, folk song materials, interactive games, and multimedia resources were created and refined. The *implementation* stage ensured classroom integration through lesson planning and teacher facilitation. Finally, the *evaluation* phase established mechanisms for feedback and continuous improvement. This cyclical nature of ADDIE ensured that the teaching module was not static but adaptable to evolving educational needs.

TPaCK Framework: Balancing Technology, Pedagogy, and Content

To meaningfully integrate gamification into folk song teaching, the Technological Pedagogical Content Knowledge (TPaCK) Framework (Mishra & Koehler, 2006) was employed. TPaCK highlights the dynamic interplay among three domains:

Content knowledge (CK): understanding of Chinese folk songs, including melody, rhythm, lyrics, and cultural background.

Pedagogical knowledge (PK): strategies for teaching music to primary students, such as scaffolding, collaborative activities, and formative assessment.

Technological knowledge (TK): digital tools that support gamification, such as points, badges, and interactive multimedia platforms.

By balancing these domains, the framework prevented technology from becoming a distraction, instead positioning it as an enhancer of cultural learning. For instance, interactive rhythm games not only leveraged digital affordances but also reinforced musical skills and cultural appreciation.

Constructivist Learning Theory: Active Knowledge Construction

The module was also grounded in **Constructivist Learning Theory** (Piaget, 1970), which views learners as active constructors of knowledge. In this approach, students did not passively receive information about folk songs; rather, they engaged in hands-on exploration through gamified activities. Examples included:

Rhythm relay games that encouraged students to reproduce folk rhythms collaboratively.

Lyric puzzle tasks where students pieced together verses, prompting deeper understanding of language and meaning.

Melody chain games that required collective recall and extension of musical phrases.

These activities aligned with students' cognitive development stages, promoting higher engagement and more meaningful retention of cultural and musical concepts.

Self-Determination Theory (SDT): Sustaining Motivation

A central challenge in primary education is maintaining students' motivation. **Self-Determination Theory (SDT)** (Deci & Ryan, 1985, 2000) provided guidance for embedding gamification elements that support learners' psychological needs:

Autonomy: offering choices in game participation or song selection.
Competence: providing challenges at varied difficulty levels with clear feedback.
Relatedness: fostering cooperation through group performances and collaborative problem-solving.
By addressing these needs, gamified elements such as badges, levels, and group rewards became more than extrinsic incentives; they reinforced intrinsic enjoyment and meaningful engagement with folk music.

GAFCC Model: Operationalizing Gamification
To further refine the gamified design, the **GAFCC Model** (Huang & Hew, 2018) was applied. This model structures gamification around five dimensions:
Goal setting to provide clear learning objectives.
Access to ensure fairness and inclusivity in participation.
Feedback to deliver timely and constructive responses.
Challenge to maintain an optimal balance of difficulty.
Collaboration to emphasize teamwork and social interaction.

Within the module, these principles translated into practical strategies such as classroom leaderboards (feedback), folk song performance badges (goal attainment), and cooperative melody-building games (collaboration). Together, they helped transform abstract motivational principles into tangible classroom practices.

Vygotsky's Sociocultural Theory: Learning through Interaction
The cultural and social dimensions of folk song education were illuminated by **Vygotsky's Sociocultural Theory** (1978). This theory emphasizes the role of social interaction, cultural mediation, and the *Zone of Proximal Development (ZPD)*. In practice, students engaged in:
Group discussions about the origins and meanings of folk songs.
Collaborative performances that allowed peers to scaffold each other's learning.
Role-playing activities that situated songs within their cultural contexts (e.g., simulating traditional festivals).

Through these activities, folk songs became more than musical exercises; they functioned as cultural artifacts that connected students to broader traditions and fostered identity formation.

Cognitive Theory of Multimedia Learning: Enhancing Engagement
Finally, the **Cognitive Theory of Multimedia Learning** (Mayer, 2009, 2014) guided the integration of digital and visual resources. According to this theory, meaningful learning occurs when words and images are combined in ways that respect cognitive processing limits. In the module, this principle was reflected through:
Audio-visual aids that paired folk song recordings with animated notation.
Interactive maps that situated each folk song within its geographic and cultural origins.
Gamified visuals such as progress bars and avatars that reinforced learning goals without overloading attention.
These multimedia strategies ensured that the gamified environment was not only engaging but also cognitively efficient.

Together, these theories and models formed a comprehensive foundation for the gamified Chinese folk song teaching module. The ADDIE model ensured systematic design, while TPaCK provided balance between content, pedagogy, and technology. Constructivist principles promoted active participation, and SDT sustained motivation through autonomy, competence, and relatedness. The GAFCC model operationalized gamification mechanics, while Vygotsky's sociocultural theory grounded learning in cultural interaction. Finally, multimedia learning theory ensured that digital tools were integrated in ways aligned with cognitive processes.

By weaving these perspectives together, the module not only enhanced musical learning outcomes but also nurtured cultural identity and pedagogical innovation in primary school education.

Theoretical Framework

This study develops a gamified teaching module for Chinese folk songs in primary schools by integrating ADDIE, TPaCK, Constructivist theory, Self-Determination Theory (SDT), the GAFCC gamification model, Sociocultural Theory, and the Cognitive Theory of Multimedia Learning. The goal is to cultivate primary students' love for Chinese folk songs, enhance their cultural awareness, and enrich their learning experiences through gamification. There are three main aspects to be considered in utilizing these theories for this research.

In terms of content (based on Constructivist theory and ADDIE model)

Selection and adaptation of Chinese folk songs: Representative folk songs from different regions and ethnic groups of China are selected, ensuring diversity in style, rhythm, and theme. Through gamified interpretation and singing, students will be able to appreciate the richness of Chinese folk music.

Active exploration and emotional engagement: Students are guided to explore melodies, rhythms, and lyrics of folk songs. Gamified activities such as rhythm challenges, lyric-matching games, and interactive quizzes help students express their understanding and emotions. This cultivates deeper connections between music and cultural identity.

Cultural context: Teachers explain the historical and cultural background of each folk song, linking traditional elements with students' daily lives. This helps learners recognize the relevance of Chinese folk heritage in contemporary society.

In terms of pedagogy (based on Sociocultural Theory, SDT, and the GAFCC model)

Student interaction: Teachers encourage students to express their own understanding of folk songs and share feelings through classroom discussions, fostering the exchange of ideas and cultural values.

Group work: Students form small groups to learn, perform, and even create new versions of folk songs. Gamified mechanisms such as group competitions and collaborative rewards promote teamwork, creativity, and motivation.

Gamification as pedagogy: By applying the GAFCC model, lessons set clear goals, provide instant feedback, include appropriate challenges, and encourage collaboration. These elements align with SDT to satisfy students' needs for autonomy, competence, and relatedness, ensuring engagement and persistence in learning.

In terms of technology (based on TPaCK and the Cognitive Theory of Multimedia Learning)
Multimedia resources: Classrooms can be equipped with projection and audio-visual tools to display lyrics, animations, and recordings of folk songs. This provides both auditory and visual stimuli to enhance understanding.
Web and online resources: Teachers may use online platforms to share folk song databases, audio-visual materials, and interactive exercises. Students can also practice independently through gamified online quizzes or apps.
Online interaction platforms: Discussion forums or social media groups can be set up to encourage peer communication after class, allowing students to share experiences, challenges, and creative outputs.
Emerging technologies (VR/AR): If feasible, immersive technologies such as VR and AR can recreate traditional cultural contexts, allowing students to experience folk performances virtually. This deepens both musical and cultural learning in an engaging way.

Overall, through the integrated use of ADDIE, TPaCK, Constructivist theory, SDT, the GAFCC gamification model, Sociocultural Theory, and Multimedia Learning Theory, this teaching module encourages students to actively explore, participate in cooperation, and develop multiple skills. At the same time, the inclusion of gamification and modern technology provides rich resources and immersive learning experiences, promoting students' deep understanding, motivation, and cultural appreciation of Chinese folk songs.

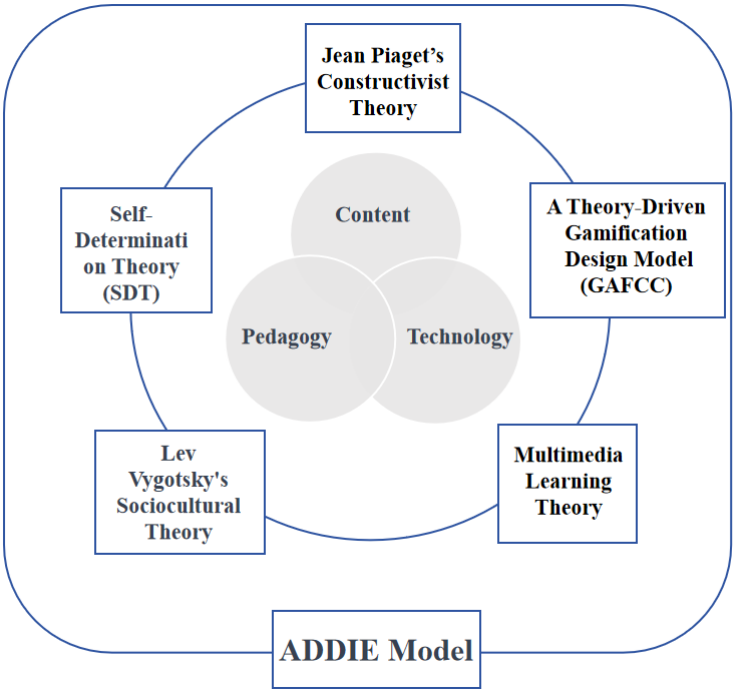

Figure 1. Theoretical Framework

Significance of the Study
This study is significant for music educators, curriculum designers, and education policymakers who aim to revitalize Chinese folk song education in primary schools. It provides a practical framework that integrates gamification, cooperative learning, and multimedia resources, enabling teachers to create interactive lessons that increase student engagement and sustain children's interest in traditional music. By strengthening students' connection to

Chinese cultural heritage, the module also benefits young learners, fostering national pride and cultural identity while building teamwork, communication, and problem-solving skills.
From a theoretical perspective, the research enriches the field of music pedagogy and cultural education by demonstrating how modern strategies—such as gamification and interdisciplinary learning—can update traditional folk song instruction. The evidence-based approach supports policy makers and school leaders in reforming primary music curricula, ensuring that Chinese folk songs remain vibrant and relevant in contemporary education.
Overall, this study benefits teachers, students, and educational planners by offering a tested, adaptable model that preserves cultural heritage while promoting innovative teaching practices.

Conclusion

This study explored the theoretical foundations and practical implications of developing a gamified Chinese folk song teaching module for primary school education in China. By integrating theories such as ADDIE Model, TPaCK framework, Constructivist Learning Theory, Sociocultural Theory, Self-Determination Theory (SDT), GAFCC Gamification Model, and Cognitive Theory of Multimedia Learning**,** the module was designed to enhance students' engagement, musical understanding, and emotional connection to Chinese folk songs.

The gamified module demonstrates how primary school students can actively participate in learning through interactive, cooperative, and technology-enhanced activities**.** Elements such as points, badges, leaderboards, and collaborative games encourage motivation, reinforce learning, and cultivate creativity and teamwork. These strategies not only foster musical skills but also promote cultural appreciation and emotional engagement with Chinese folk heritage. The study further highlights the importance of teacher guidance and pedagogical innovation. Educators play a crucial role in designing and facilitating learning experiences that balance fun, engagement, and educational rigor**.** Incorporating digital tools, multimedia, and gamified elements ensures that students encounter diverse learning opportunities, enhancing both cognitive and affective outcomes.

In conclusion, developing a gamified Chinese folk song teaching module is a dynamic and innovative approach to primary music education. It addresses challenges such as low student engagement and limited teaching resources while fostering creativity, collaboration, and cultural appreciation. Future research and practice should continue to explore effective gamification strategies, integration of emerging technologies, and cross-cultural adaptation, ensuring that Chinese folk songs remain a vibrant and cherished part of primary education.

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