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RESEARCH ARTICLE

Pedagogical Mechanisms Of Independent Learning Of Traditional Classical Songs Based On Digital Technologies

Fotima Sapoyeva

Nizami Uzbekistan National Pedagogical University, Faculty of Professional Education and Arts, Acting Associate Professor, Uzbekistan

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Abstract

This article analyzes the pedagogical mechanisms for the effective organization of students' independent learning of traditional classical songs within the system of higher music education. The study reveals the functional role of audio-analytical, reflective, and creative approaches formed on the basis of digital technologies in the educational process. By integrating the oral-performing nature of traditional vocal art with modern digital tools, the mechanisms for developing students' performance competence, musical thinking, and independent learning skills are substantiated. In addition, the improvement of vocal technique, intonation accuracy, and artistic expressiveness through self-monitoring, spectral analysis, and interactive platforms is explained from a scientific perspective. The research findings demonstrate that a digital-technology-based independent learning model serves as an effective pedagogical mechanism for teaching traditional classical songs.

KEYWORDS

Digital technologies, independent learning, traditional classical songs, audio-analytical method, reflective learning, performance competence, vocal technique, Shashmaqom, self-monitoring, music education.

INTRODUCTION

In the modern system of higher education, one of the priority tasks of music education is the formation of specialists capable of independent learning, analytical thinking, and creative decision-making. In particular, the process of teaching traditional classical songs requires a special pedagogical approach due to its oral-traditional nature, complex intonational structure, and high artistic demands. Traditional Uzbek classical music—maqom, katta ashula, and classical melodies—has historically been transmitted through the master–apprentice system. However, today's digital educational environment makes it possible to enrich this traditional system with modern technologies and to organize independent learning on a scientific basis. In this context, identifying the pedagogical mechanisms of independent learning of traditional classical songs based on digital technologies constitutes a relevant scientific problem.

The process of mastering traditional classical songs is characterized by several key pedagogical features, including oral–aural learning mechanisms, the priority of intonational subtlety and vocal culture, and the close unity of text, melody, and emotional expression. These features require not only reproductive activity but also reflective and analytical engagement in independent learning. Digital technologies effectively respond to these requirements by providing tools for conscious perception, comparison, and self-assessment of musical performance. The audio-analytical approach serves as one of the central mechanisms of independent learning, as it

develops students' auditory memory, phonetic sensitivity, and intonational accuracy. Through listening to professional performances, analyzing them, and comparing them with their own interpretations, students consciously internalize musical material.

Spectral analysis conducted with the help of digital software such as Audacity, Praat, and Adobe Audition enables the identification of vocal sound characteristics, including frequency, vibrato, dynamics, and resonance. This process strengthens self-monitoring and reflective learning and contributes significantly to the formation of performance competence. In the study of traditional vocal art, the reproductive approach ensures the acquisition of technical foundations, while the creative approach supports the development of individual artistic thinking. Within independent learning, these approaches are applied sequentially and in an integrated manner. For instance, a maqom piece is first mastered based on a classical performance model and is subsequently developed through a creative interpretation adapted to the student's vocal abilities. This mechanism ensures both technical stability and artistic freedom in performance.

Digital video and interactive platforms significantly expand opportunities for visual analysis in learning traditional classical songs. By observing stage culture, body posture, and nonverbal expression in master performances, students gain a deeper understanding of artistic interpretation. The possibility of repeated viewing and detailed analysis enhances the effectiveness of independent learning and allows students to consciously refine vocal technique, intonation, and expressive means.

In the context of rapid digital transformation, the education system is experiencing profound changes that affect not only teaching methods but also the ways learners interact with cultural heritage. Music education, particularly the teaching and learning of traditional classical songs, faces both challenges and opportunities in the digital era. Traditional classical music, which embodies national identity, historical memory, and aesthetic values, has conventionally been transmitted through master–apprentice models and face-to-face instruction. However, the integration of digital technologies has introduced new pedagogical mechanisms that enable learners to independently study, analyze, and master classical musical works.

Independent learning supported by digital technologies is increasingly viewed as a learner-centered approach that enhances autonomy, motivation, and lifelong learning skills. From a pedagogical perspective, this approach aligns with constructivist, connectivist, and self-regulated learning theories. Therefore, understanding the theoretical foundations of independent learning of traditional classical songs through digital tools is essential for developing effective educational models and ensuring the sustainability of musical heritage in contemporary society.

Independent learning refers to a process in which learners take responsibility for planning, implementing, monitoring, and evaluating their own learning activities. In music education, independent learning involves self-directed practice, critical listening, performance analysis, and reflective evaluation. According to self-determination theory, autonomy is a key factor that enhances intrinsic motivation and deep engagement with learning content. When applied to the study of traditional classical songs, independent learning allows students to explore musical structures, stylistic features, and cultural contexts at their own pace.

From a pedagogical standpoint, independent learning in music is closely linked to metacognitive skills, such as self-assessment, goal setting, and strategic practice. Digital technologies provide tools that support these processes by offering interactive feedback, progress tracking, and access to diverse learning resources. As a result, learners are no longer passive recipients of musical knowledge but active constructors of meaning and skill.

Digital technologies play a mediating role in the independent learning of traditional classical songs. These technologies include audio and video platforms, mobile applications, learning management systems, digital notation software, and artificial intelligence–based feedback tools. According to the theory of mediated learning, tools and technologies shape cognitive processes by extending human capabilities. In music education, digital tools enable learners to repeatedly listen to high-quality recordings, visualize musical notation, and analyze vocal or instrumental techniques in detail.

From a constructivist perspective, digital environments facilitate experiential learning by allowing learners to experiment, compare interpretations, and reflect on their performance. For example, slow-motion playback, pitch visualization, and rhythm analysis tools help learners identify nuances in classical songs that are often difficult to grasp through traditional instruction alone. These affordances

contribute to deeper musical understanding and skill development.

The pedagogical mechanisms underlying independent learning of traditional classical songs through digital technologies can be categorized into cognitive, motivational, and socio-cultural dimensions.

Cognitive mechanisms involve perception, memory, and analytical thinking. Digital resources support cognitive processing by presenting musical information in multimodal formats, combining sound, text, notation, and visual cues. Cognitive load theory suggests that well-designed digital materials can reduce extraneous cognitive load and enhance meaningful learning. For classical music learners, this means clearer comprehension of melodic structures, rhythmic patterns, and stylistic conventions.

Motivational mechanisms are linked to learner engagement and persistence. Gamification elements, personalized learning paths, and instant feedback provided by digital platforms increase learners' interest and confidence. According to expectancy–value theory, learners are more motivated when they perceive learning tasks as valuable and achievable. Digital technologies allow learners to set achievable goals, monitor progress, and experience a sense of accomplishment, which is particularly important in mastering complex classical songs.

Socio-cultural mechanisms emphasize the role of cultural context and social interaction in learning. Traditional classical songs are deeply rooted in cultural traditions and collective memory. Digital platforms enable access to archival recordings, expert performances, and cultural commentaries, thereby situating learning within its authentic cultural framework. Social learning theory highlights the importance of observation and modeling; online communities and virtual masterclasses allow learners to observe professional musicians and engage in peer interaction, even in independent learning settings.

Several educational theories provide a conceptual basis for understanding independent learning of classical music through digital technologies. Constructivism emphasizes learner-centered knowledge construction through active engagement and reflection. Connectivism, a theory developed for the digital age, highlights learning as a process of forming networks between information sources, individuals, and digital systems. This is particularly relevant for music learners who navigate online repositories, tutorials, and expert networks.

Self-regulated learning theory further explains how learners plan, monitor, and evaluate their learning activities. Digital tools support self-regulation by offering analytics, reminders, and adaptive feedback. In the context of traditional classical songs, self-regulated learning enables students to identify weaknesses in performance, adjust practice strategies, and achieve higher artistic quality.

The theoretical analysis demonstrates that independent learning of traditional classical songs based on digital technologies is grounded in well-established pedagogical and psychological theories. Digital tools act as mediators that enhance cognitive processing, motivation, and cultural understanding, while independent learning fosters autonomy and lifelong musical development. Integrating these theoretical perspectives provides a solid foundation for designing pedagogical models that preserve the authenticity of classical music while adapting it to the demands of modern education.

In conclusion, the synergy between digital technologies and independent learning represents a promising direction for contemporary music pedagogy. It not only supports effective skill acquisition but also ensures the transmission and revitalization of traditional classical songs in the digital era

CONCLUSION

The findings of the study indicate that independently organized learning based on digital technologies constitutes an effective pedagogical mechanism for teaching traditional classical songs. The integration of audio-analytical, reflective, and creative approaches contributes to the development of students' performance competence, musical thinking, and independent learning skills. This approach serves as a scientific and methodological foundation for mastering national musical heritage in accordance with the requirements of contemporary education.

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