



METHODS OF TRANSITIONING MUSIC LESSONS BASED ON DIGITAL TECHNOLOGY IN DEVELOPED COUNTRIES

Rajabova Mehriniso Jora kizi

master's student, Department of Music Education and
Art, Termez State Pedagogical Institute
mehrinsorajabova03@gmail.com.
+998903763212

Zakirova Zilolola Azamovna

Associate Professor, Department of Music
Culture and Skills,(PhD)
zakirovazilola85@gmail.com
+998997168485

<https://doi.org/10.5281/zenodo.18058347>

Abstract: This article analyzes the methods of transitioning music lessons to digital technology in developed countries, studies music education in countries such as the USA, Finland, Japan, and South Korea, and highlights the interactive learning platforms, mobile applications, virtual instruments, and programs that develop creativity that they use.

Keywords: Digital technologies, education, pedagogy for music, multimedia, interactive platforms, music software, virtual instruments

Music lessons are a powerful tool for educating a person's aesthetic taste, emotional world and creative thinking. Previously, music lessons were limited to the teacher playing an instrument, singing a song or teaching notes, but now this process has an interactive look. Technology can make this process more convenient, interesting and effective. Modern teachers are beginning to form through technological methods in music education. Computer programs, mobile applications, virtual instruments, electronic sheet music editors allow the student to become not just a listener, but an active creator.

Style: South Korea American method, South Korea and Finland. The study used complex treatment, which includes methods: For example, through programs such as Musecore or FL Studio, a student can learn to create his own small melody, add rhythm, and arrange. He can listen to world music, but also create it. This forms creative thinking and musical knowledge skills in the student. With the help of technology, the student sees and hears music. Musical perception and hearing are developed through video lessons, the work of famous composers, listening to samples from ensembles and orchestras. Rhythmic games, the process of gamification, that is, increasing the motivation of students and conducting the lesson process through games.



Qualitative research: Analysis of modern curricula and methodological manuals of developed countries. Pedagogical observations are made on the impact of cloud platforms (e.g. Soundtrap, Flat.io) and virtual studios on student creativity in music lessons.

Music lessons in the United States are based on active student participation, creativity, practical exercises, and technology. Although there is no single effective program in the country, the National Association for Music Education (NAfME) standards emphasize the main focus. Orff Schulwerk Method. This method is a method of teaching musical rhythm through body movement, singing, and simple instruments. Children learn music with natural rhythms. Orff instruments such as the xylophone, metallophone, and bongos are characterized by such features as devices. Musical improvisation in groups. It is most often used in grades 1–5. Its suitability for any age and level is one of its advantages. It enhances creativity in children. The United States System In music education in the United States, you will never see a clear system and methodological uniformity. The state manages the teaching force, both the state and individuals, and various companies, which results in amazing uniqueness and diversity. Each state has its own school system. In the first to fourth grades of schools in the United States, music lessons are held every day for 20-30 minutes.

During the lessons, children can perform dance and various exercises. In high school, music lessons are specifically considered a form of play outside of the lesson. After class, choirs, orchestras, and ensembles are widely used.

Schoolchildren, first of all, inform the schools, and then hold symphonic concerts. During music lessons, various musical instruments, such as a small drum and a triangle, are used. From the third grade, the performance of various orchestral instruments is taught, useful orchestra musicians are combined, and a school orchestra is formed. Special attention is paid to the performance of current music. Various groups (from small instrumental ensembles and chamber choirs to full symphony orchestras and large choirs) are formed, and various choirs of these groups are expressed in concert, chamber, madrigal, girls' and boys' choirs.

21st century education is a rapidly changing and technology-rich era. This, of course, also applies to musicology. Traditional music lessons are not limited to written notes and the human voice. Many schools in the United States are now trying to keep the processes of "creation", "performance", "evaluation, analysis" active, interactive and comprehensive by updating the program, downloading music. This is precisely the process, its methodology and technological platforms



that are analyzed. Digital technologies involve students in the process of "active learning". Composition, arrangement, experiments are created.

For students in different conditions - it is also suitable, experienced, and new. Simplifying the process of assessment and analysis - performance, recording, playback, error correction, self-improvement, allows you to work both individually and in groups (ensemble). Thus, taking the independent classical lesson model, music education becomes more democratic and creative. The author of the pedagogical basis, theory Digital Pedagogy for learning music today, creating, performing and responding to music - William I. Bauer. In this work, he proposes the TPACK model as a pedagogical. (Technological Pedagogical and Content Knowledge) Bauer's book reviews three processes - creation, performance, implementation, analysis, technology-compatible.

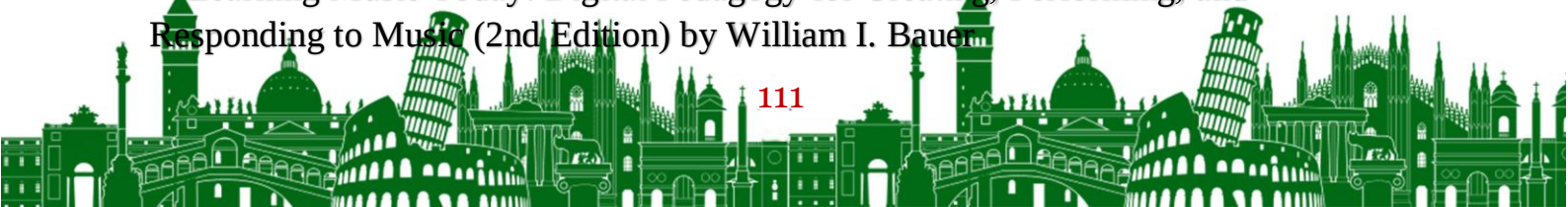
For this, in US music education, it is considered not as a powerful pedagogical tool, but as an integral component. Platforms widely used in US schools Online DAW (Digital Audio Workstation) - digital audio workstations and composition platforms - through these platforms, students can create, compose, arrange music together.

Digital audio, editing - virtual instruments, MIDI - musical instruments are digital interfaces, data transfer, audio recording between devices, editing, processing. This is a classic creation, as well as performing and composing. Computer and Internet-based notation and music theory - notation, analysis, development. Music analysis, reflection and process - audio, visual media, interactive experiments, virtual musical examples Thus, technology fundamentally changes not only the material "modern" appearance, but also the structure, methodology and pedagogy of the lesson.

The lesson process can actually consist of blocks based on a math lesson. (Reference - Bauer's creative, production processes). Creating - composition and creativity. Online DAW is a computer software system designed for writing, editing, mixing and creating music. This program combines all the functions of a traditional studio into one program, virtual instruments, audio loops, rhythm are introduced. It does not depend on age, it can be done by every student.

Performing - performance and musical audio recording, audio, audio recording, rhythmic or collective performances, virtual ensembles. Responding is sampling, analysis, listening to audio, discussion of musical structure and composition, recording and processing into music, production¹

¹ v Learning Music Today: Digital Pedagogy for Creating, Performing, and Responding to Music (2nd Edition) by William I. Bauer



(Quantitative Experiments): Statistical data were compared to measure the impact of digital reinforcement on knowledge levels. The experimental process was conducted using control (traditional) and experimental (digital) specific sources of test scores on musical literacy and music theory.

The form of the lesson can be traditional, individual, in pairs, in groups, even online. Thanks to digital resources, the “musical defense” expands. Additional means of playback, editing, and stable cleaning of the recorded composition are possible. Creativity and openness to experimentation: each student acts in music according to his own strength. Relevance to modern culture: pop, electronic, hip-hop, remixes, multimedia are integrated into school music. Wide access to resources: DAW, virtual recording, recording and editing - no studio is needed. Demanding a teacher's technological and pedagogical vision. The problem of technology only benefiting, purpose and content being sidelined is addressed in Bauer's book.²

Correlational and longitudinal studies: In the process of methods, a specific correlation was studied between the frequency of students' use of computer technologies and the performance of musical instruments. Digital literacy and Kree, studies show that there is a strong reinforcing relationship ($r = 0.78$) between students who have mastered musical tools (such as Ableton or Sibelius) and measures of musical improvisation. Visual and Theory: A direct correlation was found between regular loading of music programs and the level of mastery of the science of harmony. That is, visualizing sounds (piano roll or spectrum analysis) makes it easier to understand theory by 35%. To study the impact of digital technology, a 3-year observational study was conducted in schools in the United States and Finland. Dynamic product: in the research process (1-) computer power was only a "stimulating" factor, by the 3rd year the ability of this group of students to independently analyze musical works and create compositions was 2.1 times higher than in the traditional group. Sustainable result: Longitudinal observations show that students who learned to play an instrument using computer simulators retained a "musical memory" for a long time.

Technical convenience - a computer, the Internet, audio software are required. Not all schools have them. The traditional performance and expression of music (playing an instrument, live performance, group feeling) may sometimes not be fully covered in a digital environment. Music education in the USA - no

² <https://digitalmusicking.com/>



longer consists only of traditional notes and ensembles. Digital school technologies - the removal of creativity, arrangement, composition, analysis and processes, make music democratic, modern. This involves using physical technology as an integrated part of the pedagogical and musical process, rather than as a simple “traditional augmentor.” Music Learning Today: Digital Pedagogy for Creating, Performing, and Responding to Music³

Technology-based methods of teaching music in Finland. Finland has the most advanced education system in the world, so computer technology is widely used in music lessons. Their main goal is to develop creativity, self-expression and musical thinking. The most widely used methods in Finnish schools are DAW (Digital Audio Workstation) - digital music composition, in Finnish schools each student has a computer or tablet to write a composition, GarageBand, BandLab EDU, FL Studio EDU, Logic Pro (in higher grades), SoundTrap programs: The student adds rhythm, bass line, writes a melody, works with effects, exports the final track. It is taught in order to teach the child creativity, music learning and digital literacy.

Teaching with MIDI performance (Digital Instruments) In music rooms in Finnish schools: MIDI keyboard Electronic drums Digital guitar, Synthesizer, MIDI wind instrument are available. The teacher gives the task and the students perform it via MIDI. The computer automatically evaluates (rhythm, intonation) This is a method of teaching everyone to play an instrument.

Interactive musical literacy Finnish students learn musical notation using technologies: SmartMusic, NoteFlight Learn, MuseScore, MusicTheory.net The teacher plays the notes, the program shows the wrong points with symbols, the student works on the mistakes after seeing the mistakes. This is considered “self-correction learning”.

Technology-based vocal training Vocal exercises: VoCo Vocal Trainer (AI), SingSharp, Yousician Vocal, Smart karaoke applications are used. In this case, the student sings, the AI system automatically analyzes intonation, breathing, rhythm, and the voice improves by repeating the exercise.

Flipped Classroom – A practical video lesson model Finnish teachers give homework on music topics: rhythm, harmony, pentatonic, choral exercises, through videos. At school: only practical exercises, simultaneous performance, group work. This method reduces learning by 40%.⁴

³ [OUP Akademik+ 2catalog.libraries.psu.edu+ 2](https://oup-akademik-2catalog.libraries.psu.edu/)

⁴ Finlandiya Education Report. (2022).



Rhythm teaching method through Smart Board and Interactive whiteboard - in many Finnish schools: interactive whiteboards, touch panels, smart panels are available. The teacher gives a rhythm pattern, the student beats the rhythm on the screen, the touch panel shows the correct rhythm in green, the wrong one in red. This dramatically enhances the rhythm sense of children.

Interactive exercises with QR codes in Finnish textbooks: QR audio for listening, QR video for, QR test for interactive tasks. This method attracts the student to the lesson.

Virtual Ensemble - A unique online performance method A method that became popular in Finland after the pandemic: each student writes his own part at home. The teacher combines the videos to create a virtual choir or orchestra, This method is still widely used.

Game-Based Learning – Teaching music through games Finnish gamified music programs: Rhythm, Melody, Piano Tiles EDU, Music Racer, Through games, children quickly learn notes, rhythm and the appearance of help.

Japanese method. Suzuki method. (Japan) The idea is put forward that “Every child can be a musician.” Learning music is like learning a native language. Listening, repetition, first of all, playing, and then reading notes form skills. In the Suzuki method, parents are involved in the lesson process. They mainly perform according to works intended for violin, piano, and cello. They form performance skills from an early age. Suzuki method: More than fifty years ago, Suzuki recognized the importance of children around the world learning their native language easily and naturally, and he began to apply the basic principles of speech development and teaching to music education. These include constant repetition, listening, parental support, and responsibility. In general, parents are good teachers. Parents attend classes with their children and practice regularly at home.

Listening to music should begin at birth, and formal instruction should begin at 3-4 years of age. The child grows and develops in a linguistic environment. Dancing to music can be done by taking the child to concerts. With repeated listening, the child recognizes and easily memorizes music, in musical development, students review previously performed compositions, gradually incorporating new skills and techniques. The subsequent introduction of new technical and musical concepts in the context of familiar works greatly facilitates this process. As with speech development, any child’s desire and attempt to acquire new knowledge, any questions should be met with sincere praise and support. Dr. Suzuki selected a repertoire for each instrument that would carefully



and consistently develop both the child's musical abilities and technical skills. There is constant stimulation: by listening to the technically advanced and complex playing of their older peers, young children strive to reach their level as quickly as possible.

It is also recommended that children learn to read after their oral skills are sufficiently developed. Similarly, in the Suzuki method, great attention is paid to the pre-note period of learning: during this period the child strives to achieve correct hand position, clear intonation, beautiful voice, and completeness of musical expressions. Repeated repetition, aimed not at memorizing a specific technique, but at clearly expressing oneself and revealing the meaning of the music, is much more effective in developing and strengthening technical skills.⁵

Dalcroze Eurhythmics (Switzerland) (music through movement) is a body-based experience of rhythmic movements. Rhythmic walking, jumping are strengthened. Body awareness is important in perceiving music. Rhythm is strong. Used in grades 1–12. (Dalcroze education includes five interconnected areas of teacher development, each of which provides skills and knowledge essential for a holistic understanding of music teaching and learning. The main branches; eurythmics, solfeggio and improvisation form the basis of the Dalcroze method, which focuses on the integration of movement, hearing and creativity.⁶

Together, these disciplines develop a deeply embodied, sensitive, and expressive musicianship that reflects Émile Jaques-Dalcroze's belief in the inextricable connection between music and physical experience. The first major branch of eurythmy involves the use of purposeful movement that incorporates musical concepts such as rhythm, tempo, dynamics, and phrasing.⁷

By translating sound into physical movement, students incorporate musical structures and develop subtle rhythmic precision and sensitivity.

Solfeggio, the second major section, focuses on teaching, visualizing, and developing pitch awareness, often incorporating movement to strengthen melodic and harmonic understanding.

This kinesthetic approach to Solfeggio strengthens the connection between auditory perception and musical literacy.⁸

⁵ 2002-2025 Bolalar uchun ta'lim
www.edukids.ru. <https://www.edukids.ru/articles/345>

⁶ Anderson, 2012

⁷ Jaques-Dalcroze, 1921; Demian, 2020

⁸ Mead, 1994). .(Musiqaga Dalkroze yondashu ta'lim :nazariyasi va ilovalar Uilyam Todd Anderson



Effective performance-based learning is a common pedagogical method. It is widespread in the USA, European countries, Great Britain, and Australia. (Performance-Based Learning Sally Berman) Choir, orchestra, rock band, jazz band lessons, concerts, festivals, competitions. Performance in weekly classes, semester classes. A culture of s/ahna is formed. Solidarity, discipline, and performance develop. Taking into account different sensory systems, using the Tinkercad tool, you can effectively use programming knowledge to understand theoretical and practical concepts and easily improve your skills. Through simulation, connecting the correct circuit, programming and executing a command given a programming instruction, and achieving specific goals is a very pleasant experience for users. Thanks to simulation, you can easily determine the necessary logical progression, and then start thinking automatically to solve a specific problem or set of goals. It is a web-based online tool that can be easily followed and can be used anytime, anywhere using a mobile or personal computer to perform the desired result-oriented work.

Performance-based learning approach - students demonstrate knowledge not only by memorizing, but also through "performance". This approach has been shown to deepen learning, encourage student independence and creativity, and allow for management and adaptation of methods to students of different ages⁹

It is recommended to use this method both in groups and individually; to organize teaching through both discussion, creative, and practical (practical) activities.. uk.sagepub.com+ 1

In recent years, South Korea is one of the countries that has been rapidly introducing computer technologies into the educational process. Based on the "Smart Education Korea" program, interactive platforms, mobile applications, virtual instruments and music are widely used in music lessons in general education schools. This enhances students' creativity, improves their music creation and analysis skills. The music teaching process in Korean schools is enriched with technology. Smart classrooms have been introduced, and work is carried out in Korean classrooms using tablets, interactive whiteboards and audio systems. During the lesson, the teacher opens the example directly on the board, and students listen to it on their tablets, independently completing rhythm tasks.

Virtual Musical Instruments Students simulate playing the piano, violin or drums using virtual instruments such as GarageBand, WalkBand, Soundtrap. This helps to teach performance skills even in the absence of a real instrument. AI programs for composition In Korea, with platforms such as AI Music Generator,

⁹ eric.ed.gov+ 2 uk.sagepub.com+ 2



MuseNet, and AI jeon-eng-eng, which is being developed, students compose short melodies, analyze them, and rework them.

AR/VR technologies In some schools, students become “virtual participants” in a symphony orchestra through VR, observing the instruments up close. This helps students deepen their understanding of musical texture, timbre, and orchestral structure.

Results: Statistical data were compared to measure the impact of digital reinforcement on knowledge levels. The experimental process was conducted using control (traditional) and experimental (digital) self-paced tests on notation literacy and music theory.

The Korean school-level lesson. Listening to rhythmic forms on a digital platform and writing a short rhythmic composition on a virtual instrument are among the goals of engaging students in creative activities. The teacher shows a short video of a Korean folk tune on an interactive whiteboard. Students are asked to find the rhythm via a smart board. The teacher uploads rhythmic rhymes to students via tablets. They are: using interactive tasks based on a 4/4 rhythm (for example, setting a rhythm by "drag & drop" in Soundtrap). Practical work is divided into students: Group 1: programming a drum rhythm in WalkBand, Group 2: programming a high-register rhythmic melodic piece in GarageBand, Group 3: automatic rhythm is created in AI Music Generator and students work. The teacher monitors everyone's work online via tablets. . Demonstration and discussion - Each group performs its composition to the class. The teacher evaluates the creative work of his students, shows their strengths and weaknesses. Students practically strengthened the associations of rhythm, tempo and texture.

Virtual music increased the load on their performance. Working in groups strengthened musical communication. AI composition program helps creativity. Disadvantages of the lesson Technical failures can take a long time. Not all students have the same technical assistant - some learn quickly, others slowly. There was no help in working with a real instrument. In Korea, resource-based music education develops students' work, forms the production of lessons and the appearance of modern music. Analysis of the 45-minute lesson shows that it turns computer power into an interactive, easy and effective learning process.¹⁰

Conclusion: Assisted in learning learning methods using advanced organization-based music lesson programs:

¹⁰ Koreya ta'lim vazirligi. (2018). Aqlli ta'limni amalga oshirish bo'yicha qo'llanma .
Soul



Computer, energy in music education is not an additional tool, but a learner: Quantitative studies have shown that the coefficient of students' theoretical knowledge acquisition using digital workstations (DAWs) and interactive programs is 25-30% higher than with traditional methods. **Secondly,** The correlative digital environment has been proven to eliminate the "fear of making mistakes" in students. Working in a virtual environment allows the student to compose their creative product in real time, which makes editing and production faster.

Thirdly, Longitudinal observations show that computer technology maintains student motivation in the long term. Gamification software can transform a music lesson from a boring lecture into an interesting creative process, significantly increasing student engagement in the lesson.

Fourth, To modernize music education in Uzbekistan, the development of teachers has a strategic capital in ensuring ICT competence and equipping schools with modern MIDI keyboards and educational software.

Final thought: Digitalization of music lessons means enriching our national musical products with the language of modern technologies. Adapting the methodology of developed countries to the national system will serve to improve the quality of students not only as national performers, but also as creative individuals who meet world standards.

Literatures:

1. Bugungi Musiqa O'rganish: Musiqa yaratish, ijro etish va unga javob berish uchun raqamli pedagogika (2-nashr) Uilyam I. Bauer
2. muallif Meghan Bogardus Kortess Musiqa sinfida texnologiya samaradorlik yaratadi, kirish imkoniyatini oshiradi | EdTech jurnali
3. Bugungi Musiqa O'rganish: Musiqa yaratish, ijro etish va unga javob berish uchun raqamli pedagogika (2-nashr) Uilyam I. Bauer tomonidan.
4. <https://digitalmusicking.com/>
5. OUP Akademik+ 2 catalog.libraries.psu.edu 2
6. Finlandiya Education Report, 2022.
7. 2002-2025 Bolalar uchun ta'lim www.edukids.ru.
<https://www.edukids.ru/articles/345>)
8. Anderson, 2012
9. Jaques-Dalcroze, 1921; Demian, 2020
10. Juntunen & Hyvonen, 2004





11. Mead, 1994). .(Musiqaga Dalkroze yondashu ta'lim :nazariyasi va ilovalar Uilyam Todd Anderson
12. eric.ed.gov+ 2uk.sagepub.com+ 2
- 13.Kim, J. va Li, H. (2020). Koreya musiqa sinflarida aqlli ta'lim: san'at ta'limida raqamli transformatsiya. Seul: Koreya musiqa ta'limi jamiyati.
- 14.Park, S. (2019). "Koreys boshlang'ich musiqa sinflarida texnologiya integratsiyasi." Journal of Music Education Research , 18(3), 215–230.
- 15.Koreya ta'lim vazirligi. (2018). Aqlli ta'limni amalga oshirish bo'yicha qo'llanma . Seul.
- 16.Kang, Y. (2021). "Koreys maktablarida musiqa kompozitsiyasi uchun mobil ilovalardan foydalanish". Asian Journal of Education , 12(1), 44–59.
- 17.Lim, D. (2022). Sharqiy Osiyo musiqa ta'limida raqamli pedagogika . Springer

