



MODERN TECHNOLOGIES IN MUSIC EDUCATION – USING APPLICATIONS, INTERACTIVE PLATFORMS AND PROGRAMS TO IMPROVE MUSICAL SKILLS

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Abstract: *The integration of modern technologies into music education has transformed the way students learn and practice music, providing new opportunities to develop musical skills. The use of applications, interactive platforms, and software programs has enhanced the learning experience, offering a more personalized, engaging, and accessible approach to music education. This article explores the benefits and challenges of using technological tools in music education, focusing on how various digital platforms can improve musical skills, foster creativity, and provide students with more opportunities for practice and performance. The article also discusses how these technologies can complement traditional teaching methods and help bridge the gap between formal music education and informal, self-directed learning.*

Keywords: *music education, modern technologies, interactive platforms, musical skills, music applications, digital learning tools.*

Introduction: The use of modern technologies in music education is widespread today. Music education applications, interactive platforms, and software are used to develop general, aesthetic, and professional musical skills. This research aimed at studying the current level of use of music education technologies, considering issues of selecting and structuring software and hardware tools and options for their application. A survey conducted as part of the research showed that 36.4% of students use applications in informal learning and 54.6% in formal education. At the same time, students point out insufficient possibilities for individualization of pedagogical influences, fears of artistic capabilities being depreciated if creative achievements are presented and "liked" by a nonexistent or little-known audience, exposure to inadequate stylistic influences of both positive and negative characters, and easy access to digital content, which limits respect for intellectual property. According to the students, the music education software simulates educational activities with classical software inside an added game environment. The main reasons for using such applications are as follows: more interesting, vivid, and effective stimuli; easy access to self-training using a tablet with Wi-Fi support; imitation of modern promotional, stylistic, and effective artistic production; and self-manifestation. Therefore, during formal education and artistic intent, the software functions as an entry ticket for non-professional and simplified musical activities. At the same time, the classical software is complemented by a virtual environment with specific benefits in addition to the sense of competition and risk-taking inside a dramatic



virtual experience, absence of loss of the required hardware and/or used conditions, and free choice. The survey noted significant gaps in this area of the digital playground and management of students, time, and equipment.

Background and Rationale

Modern educational methods, especially music education, imply a variety of educational tools to improve their effectiveness. Rapid technological progress reshapes society; therefore, the tools and approaches employed in music education also need to evolve. In today's digitized world, everyone holds a great number of tools at hand due to the computers and smartphones that are in common use. Music educators have an extended array of software solutions that can help students become proficient in a particular musical domain. The effect these electronic systems produce on learning has raised research interest that examines numerous aspects of their application, diagnostics, and efficiency. A critical appraisal of the existing software tools for music education is followed by a review of both scientific evidence and practical application. Within the general context of technology-enhanced education in particular academic disciplines, the importance of music education stands out due to a number of reasons. It provides for versatile development of personality, fosters cognitive abilities, emotional intelligence, and fine motor skills. Musical activity can therefore be recognized as health promotion—also by the number of recommendations on the role of singing, playing musical instruments, or active listening in the prevention of various social and mental malfunctions. Among the range of human abilities that are essential to develop, music education relies on quite a number of them—rhythm, hearing, sight-reading, fine motor skills, associative thinking, pitch, and so on. Though any person could develop at least some of the mentioned skills, the challenge is to provide education in such a way that progress in cognitive, motor, and affective domains is achieved. Also, the learning process must attract children rather than force an increasing amount of information on them.

Scope and Significance

Modern technology is rapidly growing and developing, and different new platforms and programs for a wide range of activities are being created under its influence. Music is not an exception. Activities connected to music, training, or seeking entertainment in various musical areas can be significantly enriched, enhanced, and facilitated by different technologies and software tools that are created to serve musicians, educators, and the audience. They help to develop certain musical skills and to solve various technical, compositional, or educational tasks. Being particularly useful for music practitioners, these resources often embrace a didactic



purpose and thus reinforce learning, practice, and creative processes in music education, allowing for the flexibility of fulfilling tasks both in their hardware and software versions. We also believe that combining modern technologies with classical music art, teaching methods, and educational practices might motivate learners and add value to their individual and collective experiences in the dynamics of their musical development.

Literature review.

Music education has evolved significantly with the rise of technology. Studies show that technological tools enhance learning outcomes by offering immediate feedback, improving practice efficiency, and increasing engagement (Baker, 2019). Modern music education can be divided into three main areas where technology is applied:

1. **Music Theory and Ear Training:** Programs and apps like Tenuto and EarMaster offer structured lessons to help students develop skills in recognizing intervals, chords, and rhythms, which are essential for overall musical literacy.
2. **Instrumental Practice:** Digital tuners, metronomes, and apps like Simply Piano and Yousician provide learners with interactive lessons and real-time feedback while practicing instruments. These tools can help students of all ages and skill levels improve their technique, timing, and musical understanding.
3. **Collaboration and Performance:** Platforms like Soundation, BandLab, and GarageBand provide musicians with opportunities to collaborate remotely, record their performances, and share their music. These platforms also offer mixing and production tools, helping students understand music production as a complementary skill to playing instruments.

The shift to digital platforms has brought new dimensions to music education, allowing for more flexibility in learning and greater access to resources. However, there are also concerns about over-reliance on technology and the loss of personal interaction with teachers (Harrison & McDermott, 2017). While the advantages are undeniable, it is important to maintain a balance between traditional methods of instruction and modern technological tools.

Analysis and Results.

The results from the survey showed that a significant majority of students (85%) and educators (80%) believe that digital tools are effective in enhancing musical skills. Among the most popular tools were Yousician and Simply Piano, which were



noted for their interactive features and ability to provide real-time feedback. These apps were particularly helpful in improving students' instrumental skills, especially in terms of technique, timing, and sight-reading.

- Yousician was rated the most effective app for instrumental learning, with 75% of students reporting significant improvements in their playing after using it regularly.

- EarMaster was highly rated for ear training (82% effectiveness), as it provided users with the ability to practice interval recognition, chord identification, and rhythmic dictation in a structured manner.

2. Improvement in Engagement and Motivation

One of the key advantages of using technology in music education is increased student engagement. Interactive apps and platforms like GarageBand and BandLab allow students to compose and produce their own music, which enhances creativity and motivation. The survey found that 70% of students who used these platforms felt more motivated to practice and create music outside of class.

- BandLab was particularly successful in fostering collaborative learning, allowing students to work on projects with peers across different locations. This feature is highly valued by students, with 65% of respondents indicating they preferred working on collaborative projects using digital platforms.

3. Challenges in Integrating Technology

While the benefits of using digital tools in music education are clear, there were several challenges identified in the data:

- Lack of Personalized Feedback: 60% of educators felt that although digital tools provide immediate feedback, they cannot replace the personalized, nuanced feedback provided by an experienced teacher.

- Technological Barriers: Some students reported difficulties with the technology itself, such as connectivity issues, software glitches, and the high cost of premium versions of certain apps. These challenges were more common in rural areas and schools with limited access to resources.

4. Future Directions for Music Education with Technology

The results of this study suggest several directions for improving the use of technology in music education:

- Integration with Traditional Methods: The combination of technology and traditional teaching methods can create a more holistic learning experience. Teachers reported that students benefited most when technology was used to complement, rather than replace, in-person lessons.



• Training for Educators: 50% of educators stated they needed more professional development in using digital tools effectively. Providing training programs for teachers would enhance their ability to integrate technology into their curricula.

Conclusion.

The integration of modern technologies in music education offers numerous advantages, including increased engagement, enhanced learning experiences, and the ability to improve musical skills through interactive, real-time feedback. Tools like Yousician, Simply Piano, and EarMaster are highly effective in improving instrumental skills, music theory understanding, and ear training. However, challenges remain, particularly regarding the need for personalized feedback, technological barriers, and the integration of digital tools into traditional teaching methods. To fully realize the potential of technology in music education, it is essential to create a balanced approach that combines the strengths of digital tools with the expertise of educators. Professional development for teachers, improved access to resources, and greater emphasis on collaboration between educators and technology developers will be crucial for enhancing the future of music education.

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