

Students' Use of AI Tools in Music Learning: A Preliminary Study

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Abstract

The growing use of artificial intelligence (AI) in education has also influenced music learning, offering students new possibilities for study, practice, and creativity. Although AI tools are increasingly accessible, their actual use in music education remains insufficiently documented. This preliminary study explores how university music students use AI tools in their learning process. A total of 36 questionnaires were administered to undergraduate students in music programs (Transilvania University of Brasov, Romania). The survey investigated frequency of use, preferred platforms, purposes of use, and students' perceptions regarding the benefits and limitations of AI technologies. The results indicate that students mainly use AI tools for quick explanations, idea generation, research support, practice guidance, and study organization. The findings highlight the growing presence of AI in music education and suggest the need for responsible pedagogical integration that supports learning while preserving critical thinking, creativity, and essential musical skills.

Keywords: artificial intelligence, music education, higher education, student learning.

1. Introduction

Artificial intelligence (AI) has become an increasingly significant presence in contemporary society, influencing education, communication, professional activity, and everyday life. Among the many domains shaped by recent technological innovation, music represents one of the most dynamic and complex areas of AI application. The relationship between artificial intelligence and music has generated new opportunities for composition, performance, production, analysis, and digital interaction with musical content. Current developments in AI technologies show that these

systems are evolving beyond purely technical functions and are beginning to contribute to processes traditionally connected with human creativity and artistic interpretation (Jiang, 2025; Mazlan et al., 2026; Pfeiffer & Krishna, 2025; Ventayen, 2026). AI applications are now capable of generating original musical material, reproducing stylistic characteristics associated with well-known composers, assisting creative workflows, and supporting interactive musical experiences. In addition, intelligent virtual systems can adapt to expressive and emotional parameters, offering new possibilities for experimentation and artistic exploration. As a result, artificial intelligence is increasingly redefining the ways music can be created, studied, interpreted, and experienced in contemporary culture (Belibou & Iftene, 2025; Civit et al., 2022; Wei & He, 2026; Willmann, 1944; Zhu, 2025).

Although the educational impact of AI has become a widely discussed topic, relatively few studies investigate music students' perspectives, particularly within the European higher music education context, where student opinions are still rarely addressed in research, compared to the broader body of extra-European studies (Chen, 2025; Wang, 2025; Wang & Li, 2024; Wu & Qin, 2025; N. Yuan, 2024; S. Yuan, 2020; Zhang et al., 2024). Understanding how students actually use AI tools in their daily academic preparation may provide useful perspectives for future pedagogical approaches and curriculum development.

The present preliminary study investigates the use of AI tools among undergraduate music students at Transilvania University of Brasov. The research focuses on identifying the frequency of use, the purposes for which students employ AI applications, and their perceptions concerning the advantages and limitations of these technologies in music learning.

2. Methodology

The research instrument consisted of a short structured questionnaire containing two open-ended questions: "What AI tools do you use as students in your musical training?" and "What is your opinion regarding the use of artificial intelligence in musical training?". The questionnaire was designed specifically for the purpose of this study. The survey was administered anonymously, and no personally identifiable information was collected. Participation was voluntary, and respondents did not receive any financial compensation for completing the questionnaire. Ethical

research principles regarding confidentiality and respondent anonymity were respected throughout the study.

The average completion time for the questionnaire was approximately 5–8 minutes. Due to the exploratory nature of the study and the limited number of questions, the questionnaire was not pretested prior to distribution. The responses were interpreted manually through qualitative reading and analysis. The researcher carefully reviewed all answers and identified the main recurring ideas, opinions, and themes expressed by the participants. The collected responses were analyzed qualitatively and descriptively. Because this study is preliminary in nature, the research focuses primarily on identifying recurring tendencies and common patterns in students' experiences rather than establishing statistically generalizable conclusions.

The participants included 36 students from the Faculty of Music enrolled in the Instrumental Performance and Music Pedagogy study programs. The respondents were between 19 and 23 years old. Of the total participants, 20 were male and 16 were female.

3. Results

The responses reveal a varied but generally positive attitude toward the use of AI technologies in academic music learning. Most participants reported using AI tools in at least some aspects of their studies, while a smaller number expressed skepticism regarding the reliability and pedagogical value of such technologies. The most frequently mentioned platforms were ChatGPT and Gemini. Students mainly associated these applications with rapid access to information, synthesis of complex materials, and support in organizing study content. Several recurring categories emerged from the analysis of the responses.

3.1. Support for Theoretical Learning and Research

35 students reported using AI tools to support their understanding of music history, music theory, analysis, and specialized academic terminology. 30 of them emphasized the usefulness of AI applications in synthesizing large amounts of information and reformulating content in a clearer, more accessible, and academically appropriate manner. According to the responses, students frequently rely on platforms such as ChatGPT and Gemini when preparing for theoretical courses, especially in disciplines that involve extensive reading, historical information, analytical concepts, or complex terminology.

As one participant explained, “I use ChatGPT and Gemini to synthesize information for subjects such as music history,” while another stated that “I use AI to obtain information that is difficult to access through other methods.”

The responses indicate that AI tools are used most frequently for historical perspectives and for organizing information from courses taught by professors. 6 students explained that they use AI primarily to create summaries of lecture materials, reorganize information chronologically, and facilitate revision before examinations. In this context, AI is perceived mainly as a support instrument that helps structure and condense academic content rather than as an independent source of knowledge. One student wrote: “Due to limited time, I use AI tools to create summaries and synthesize theoretical information more efficiently.”

Students also reported using AI to clarify difficult theoretical notions and to improve the academic language of written assignments, presentations, or seminar papers. However, important reservations emerged regarding the reliability of AI-generated content in more specialized musical domains. Several respondents observed that, in the case of musical analysis, AI systems do not always employ accurate or sufficiently specialized terminology. Others noted that responses related to music theory frequently contain conceptual inaccuracies or errors in content, especially when addressing more advanced theoretical subjects. One participant mentioned that they had stopped using ChatGPT after discovering that “some of the information it provided was incorrect,” particularly in specialized musical subjects.

As a result, many participants stated that they do not fully trust AI-generated information and consider verification through academic literature, course materials, and direct consultation with professors to be essential. These responses suggest that students perceive AI primarily as a supplementary educational tool that can facilitate organization and initial understanding, while authoritative knowledge and specialized musical competence continue to be associated with traditional academic instruction and direct pedagogical guidance.

3.2. Musical Creativity and Technical Exploration

A smaller number of respondents referred to the use of AI technologies in creative and technical musical activities. Unlike the students who mainly relied on AI for theoretical learning and

academic organization, these participants explored the potential of artificial intelligence in areas directly connected to musical creation, production, and artistic experimentation.

Several students (9 of them) mentioned using AI platforms to generate musical ideas, discover new creative directions, or explore alternative approaches to composition and arrangement. Some respondents reported listening to AI-generated musical projects out of curiosity or as a source of inspiration for their own artistic work. 5 students stated that AI tools helped them identify materials related to composition techniques, orchestration, instrumentation, and musical analysis, particularly when searching for examples or introductory explanations. A number of 4 students also associated AI with technical aspects of music production. In these cases, AI applications were used to obtain suggestions regarding mixing and mastering processes, sound design, or digital audio production. Participants appeared particularly interested in the speed with which AI systems can provide practical recommendations or generate examples that may support individual experimentation.

Despite this interest, 19 students did not perceive AI as a substitute for artistic creativity or professional musical competence. On the contrary, they generally described these technologies as complementary tools capable of stimulating imagination, facilitating experimentation, and supporting exploratory learning processes. Several participants (19 of them) emphasized that authentic musical expression, interpretative sensitivity, and compositional originality remain fundamentally human dimensions that cannot be entirely reproduced through automated systems. The responses therefore suggest that students tend to view AI primarily as a supplementary creative resource rather than as an autonomous artistic agent. Its role appears to be associated more with inspiration, assistance, and technical support than with the replacement of individual artistic work or musical decision-making. One student stated: “I do not believe that creativity and artistic expression can be replaced by artificial intelligence.”

3.3. Critical Perspectives and Limitations

An important aspect of the responses concerns the critical attitudes expressed by several students regarding the reliability and applicability of AI in professional musical training. Some respondents (24 of them) stated that they avoid using AI because the information provided may not always be

accurate or derived from official academic sources. Others emphasized that artistic and interpretative skills cannot be acquired exclusively through technological assistance.

Particular skepticism appeared in relation to practical musical disciplines such as performance technique and interpretation. Students argued that instrumental and vocal practice depends primarily on direct study, repetition, and interaction with teachers rather than on automated explanations. One recurring perspective was that AI cannot fully understand the complexity of artistic interpretation or the individuality of technical development in music performance. Respondents emphasized that certain aspects of musicianship can only be developed through practical experience and specialized pedagogical guidance. At the same time, several students acknowledged that AI may still be useful for general cultural information, exploratory learning, and introductory documentation. One respondent stated that “Technical and artistic skills in music cannot be learned from AI alone, but through practice and direct interaction with teachers.”

4. Discussion

The findings of this preliminary study suggest that AI technologies are already present in the academic lives of music students, although their use remains relatively limited to general educational and informational purposes. Most respondents demonstrated familiarity with widely accessible AI platforms such as ChatGPT and Gemini, which they primarily use for summarizing information, organizing course materials, clarifying theoretical concepts, and reformulating academic texts. These practices indicate that students perceive AI mainly as a practical support tool for theoretical disciplines and academic efficiency. At the same time, the responses reveal a relatively low level of engagement with AI platforms specifically designed for music creation, composition, or advanced musical interaction. Only a small number of participants mentioned AI-generated music, compositional experimentation, or production-oriented applications (**Figure 1**).

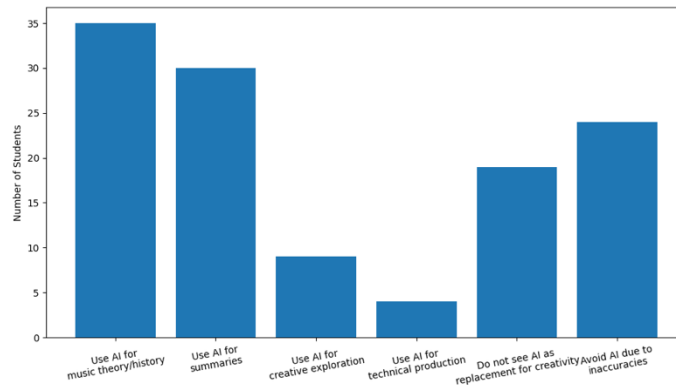


Figure 1. Students' Uses and Perceptions of AI in Music Education

This limited familiarity with specialized musical AI platforms may suggest that students' interest in AI-assisted creative musical practices remains relatively low within the current educational context. An important aspect emerging from the responses concerns students' critical attitudes toward the long-term implications of AI in the musical profession. Several participants expressed reluctance toward encouraging AI systems to compose, perform, or create music in place of human musicians. These responses reflect an underlying concern that the increasing autonomy of AI-generated artistic products could eventually diminish the social and professional role of musicians themselves. For some students, the replacement of human interpretation and creativity by automated systems represents not only a technological issue, but also a threat to artistic authenticity and professional identity.

The study also indicates that, despite the intense international discourse surrounding AI and music, there is currently no strong orientation toward AI-based musical creation within the university music environment investigated in Braşov, Romania. Students' use of AI appears to remain concentrated primarily on informational and textual functions, such as generating summaries for music history courses, reorganizing lecture content, clarifying terminology, or reformulating academic texts. In most cases, AI is not integrated directly into the development of practical musical competencies.

A particularly significant finding is the absence of responses referring to the use of AI for ear training, aural skills development, interpretative refinement, or performance practice. None of the

participants mentioned employing AI technologies to develop listening abilities, improve instrumental or vocal interpretation, or enhance expressive performance skills. This absence may indicate that students continue to associate core musical training primarily with direct pedagogical interaction, personal practice, and traditional methods of artistic development rather than with technological mediation.

Overall, the results suggest that music students currently approach AI in a pragmatic and cautious manner (**Figure 2**). AI is valued for its efficiency in handling theoretical and organizational tasks, yet students remain hesitant to accept a more substantial role for AI in artistic creation or professional musicianship. This balance between technological openness and artistic skepticism may become an important point of reflection for the future integration of AI within higher music education.

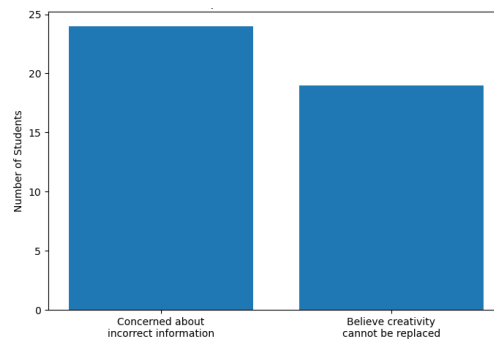


Figure 2. Critical Perspectives on AI

5. Limitations

The present research is exploratory and based on a relatively small sample of students from a single institution. In addition, some responses were brief and repetitive, limiting the depth of qualitative analysis. Therefore, the conclusions should be interpreted as indicative tendencies rather than statistically representative findings.

6. Conclusions

This preliminary study highlights the growing presence of AI tools in the academic preparation of music students. The findings indicate that students primarily use AI technologies for explanations, research support, practice guidance, creative inspiration, and study organization.

Although students generally perceive AI positively, they also recognize its limitations and continue to value the role of teachers, personal effort, and direct musical experience in their professional formation. The results suggest that AI technologies may become increasingly relevant in music education, making it important for universities and educators to develop clear pedagogical frameworks for their responsible use. Future research involving larger participant groups and more detailed quantitative analysis could provide a deeper understanding of the long-term impact of AI on musical learning and artistic development.

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