Analysis of the Path of Integrating AI Music Composition and Digital Tools to Promote the Innovative Development of Blended Learning in Music Education

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Abstract. The rapid development of AI composition and digital teaching tools is transforming the teaching methods and classroom ecology of music education. This article discusses how these two types of technical tools can be integrated and utilized in music teaching. First, it will summarize the application scenarios in the classroom, and then analyze how they drive changes in the blended learning model, explaining the mechanism of their effects from three perspectives: cognitive activation, practical expansion, and ecological reconstruction. Based on this, several suggestions are proposed, including designing teaching systems by grade levels, combining virtual and real scenarios to create a learning environment, and coordinating the educational functions of schools, families, and society. From the analysis, the in-depth application of AI composition and digital tools is transforming music education from "using tools to assist teaching" to "using tools to reconstruct the entire teaching system". This process requires teachers to change their role positioning, make students more active, and at the same time, maintain the fundamental function of music education in aesthetic cultivation. Technology can improve teaching efficiency, and humanistic guidance cannot be ignored. How to find a balance between technical efficiency and humanistic guidance is a key issue that current blended learning needs to address.

Keywords: AI composition, digital tools, music education, blended learning, innovation and development.

1. Introduction

Artificial intelligence is accelerating its penetration into the field of education. Music education has long relied on oral instruction and face-to-face guidance. There have been discussions about AI composition and digital instruments [1]. In March 2024, AI firm Suno released a music creation model capable of creating entire audio within seconds. The system's capacity for generating melody, orchestrating harmony and mimicking style has enabled instructors to recognize the potential for technology to empower them and has inspired the academic community to reconsider the constraints of music composition training. More and more digital learning platforms, virtual instruments and intelligent practice tools are available for music instruction, providing the technological preconditions for blended learning.

Blended learning has gained wide acceptance in music education. Learning music means learning to know something and exercising such talents as perception and repetitive repetition. Traditional classrooms are advantageous in immediate interaction and real-time feedback, but it is limited by class hours and teachers, and it is hard to adapt individual differences. There are online learning resources and the schedule is flexible but there is no emotional touch and no face-to-face mentorship. The blended learning design aims to combine the two, but most trials in practice are still at the stage of online preview and offline practice, and no profound modifications have been made to the teaching structure and learning process.

AI composition and digital instruments are a way to overcome aforementioned issues. AI is able to do the dull stuff, like coming up with tunes and suggesting harmonies, so that students may focus more on creativity and aesthetic choices. Digital platforms capture behaviours, provide visual feedback and help teachers to move from monotonous evaluation to differentiated instruction. Blended learning is becoming more important. This is not just a question of time division between online and offline format, but also of a complete rebuilding of the instructional material and the relationship between teacher and student.

The article describes the evolution of blended learning and its primary connections and risks in the development of AI composition and digital instruments. It is based on four areas, namely: application status, internal logic, practical tactics and reflection and discussion.

2. The Application Landscape of AI Composition and Digital Tools in Music Education

The AI-composed music and digital resources in music education have expanded in several directions at once — creative help, skill training, theoretical teaching, etc. and are progressively changing the traditional style of music courses.

Take composition teaching, for example. For instance, educators use Suno in the classroom to help students generate basic material that they then modify manually [2]. In the previous days, a student with a melodic notion would have had to go via numerous methods like notation, harmony and orchestration to get it on paper. AI has made this problem a lot easier. Now when students put in a style, a mood, or hum a piece, the machine can produce a very complete chunk of music. In the classroom, usually several versions are generated by AI first, and then students can select, modify, and develop on their own". Machine rough processing, human fine work" division of labor has pushed the starting point of composition classes forward, and students are no longer faced with a blank sheet of paper, but several paths. The teaching method also shifts from focusing on notation norms to guiding students to judge which writing method is more persuasive [3].

In terms of skill training, the penetration rate of digital tools is also increasing. Intelligent practice can listen to the issues of pitch and rhythm in real time, and students can see where the problems lie when practicing the piano. Taking "Xixi Magic Piano" (an AI-powered piano practice app) as an example, its AI error correction accuracy rate is 98.4%, and platform data shows that the error rate of children's piano practice has decreased by 58%. Previously, all of this relied on teachers listening one by one, with very low efficiency. Now, the immediate feedback eliminates a lot of time spent on correction. In the theory lessons you will have the opportunity to employ graphical tools to communicate abstract notions, such as harmonic progressions and musical form structures. It is easier to understand by hearing the music and examining the graphics.

Such instruments can also be used for the appreciation education. Waveform diagrams, spectra and listening experiences are analyzed by means of audio analysis software. Students may see graphically the physical nature of sound. Style transfer tools convert a song to versions from various periods and comparing them make the style qualities much evident than listening to the teacher's description. This is where digital sheet music and virtual instrument platforms come into play. The value of these platforms is that schools without real instruments may also conduct composition classes. With Newzik you can change the tempo, the instrument, mute a part, so it' s like you have a virtual band that can be set up on the fly.

But these devices are employed a bit differently in different regions. They are already adopted in the schools of well-equipped cities, but the rural and distant institutes do not even have the fundamental equipment. And by the way, you cannot build innovation and advancement simply on the experience of the pioneers. This gap must be taken into account.

3. The Theoretical Foundation and Value Logic of the Integration of AI Composition and Digital Tools in Music Education

We think about the convenience of technology as it pertains to using AI composition and digital resources in music education. The more pertinent question is whether such inclusion is consistent with the cognitive principles of music learning and how it will affect the interplay between teaching and learning. We have to go back to the theoretical level so that we can try to solve those concerns.

The constructivist approach to learning provides an analytical framework. Knowledge is not transferred from outside but actively constructed by the learners on the basis of their prior experiences.

And the same reasoning goes for the construction of musical creativity. Children establish their own aesthetic standards and creative strategies by exploration, listening, evaluating and changing. AI composition tools are not intended to replace student writing, but rather to provide a space for frequent experimentation and rapid feedback. "Learning thru doing" is more helpful for the development of creative potential than simple rules training.

We present one example of the importance of Artificial Intelligence (AI) technology. Cognitive load theory [4]. There is so much to do at the same time for a music composer who is beginning out: melody, harmony, rhythm, structure, notation. AI handles some of the crucial chores such as automatic harmonic accompaniment, standard score production, and style references, freeing up the student limited emphasis to creative choices and aesthetic judgements. This coincides with Vygotsky's idea of the "Zone of Proximal Development": AI functions as a technological scaffold, allowing pupils to reach levels of creativity that would be hard to achieve on their own. As their skills improve the scaffold is gradually removed returning creative initiative to students [5].

From the point of view of educational philosophy, AI enables us to reconsider the role of music education.Is it to impart a set body of facts and technical regulations, or to help learners build up a continual esthetic sense and creativity? If the latter is chosen, then artificial intelligence may free students from technical details and have them address the main questions: why is a melody moving, how does a structure create expressiveness, and how to get personal expression within the limits of regulations. These are the essential questions that music lessons should be based upon, not pushed to the side.

Smooth practice is not the same as the establishment of theory. To assume the scaffolding function of AI, instructors need to reconfigure the teaching process and rely on students' critical reflection on human—machine relationship. Misused artificial intelligence can become a tool for the replacement of Thinking. The real realization of educational value thru technology integration depends on the positioning of the role of AI and the permanent supervision of the learning process. This value is mostly expressed in the practical reconfiguration of the hybrid learning model system.

4. System Reconstruction of the Blended Learning Model in Music Education Driven by Integration

Along with digital resources, AI composition has propelled the progress of hybrid learning in music education from "formal mixture" to "system reconstruction". This transition involves a broad change in teaching objectives, the organization of teaching content, teaching techniques, and the relationship between teachers and students.

The most immediate is the change in teaching objectives. The conventional education of music is focused on the development of required abilities. Students spend a lot of time on the fundamental skills such as scales and arpeggios. But if you have AI handling part of the technical job, then it' s a matter of creative conception and esthetic judgment. Xihua University' s "Intelligent Composition Teaching Platform" has been running for 3 years. 40% rise in students' efficiency to accomplish harmony tasks, 35% improvement in the completeness of their works, 52% decrease in the error rate and 28% increase in the originality score [6]. AI conducts the basic work, and students have the strength to focus on the core creative work. The problems that teachers have to lead are no more "How to arrange chords", but how to transmit goals to the AI, what criteria to choose when facing different alternatives, how to build one' s own musical language. They are addressing the skills that are required for human-machine collaboration, and not only the technical skills.

The approach is developing, too. This is the "autonomous exploration-AI assistance-discussion-guidance" series replacing the "demonstration-imitation-practice" process. Students make early attempts on digital platforms before class, and class time is largely focused on discussion, mutual appraisal and in-depth support. The class turns from knowledge transfer to ideological confrontation, and the limited time is used for exchanges artificial intelligence cannot replace.

Also, the teacher-student relationship is changing. AI intervention implies that technology is not the major giver of knowledge. Instructors are not the primary providers of knowledge and technology. The role of the instructor is moved from "teacher" to "guide" and "collaborator", and their major duty is to provide learning challenges, to build scaffolds and to promote reflection [7]. Students' subjectivity is rising, and they are required to make more and more autonomous decisions on learning paths and assess independently information generated by AI. The new style of human-machine collaboration has set higher criteria for both sides.

The method of evaluation also need modification. What is more essential than the "results"—not merely what they did—is the "process"—the students' grasp of the material, their skills for examining it, and their procedures of change. Digital platforms can keep track of change records to help analyze the process. It need to be further researched how to extract meaningful information from the process data and build a deep and efficient framework.

5. Practical Paths for the Innovative Development of Blended Learning in Music Education

The reorganization of the aforesaid variables should be carried out in three directions: the teaching system, the learning environment and the educational technique. Specifically it may arise from the following routes:

Teaching design per school level (tiered). The aim is to pique interest and create sensory experiences for primary school youngsters. Easy AI development problems provide them with a sense of the fundamental structure of music. High school kids do not need to have particularly rigorous technological operations. They are introduced to fundamental principles related to AI composition gradually. Based on the knowledge of the limitations of the technology, they attempt a human-machine collaborative music expression. Specialist courses in AI music composition at the college level might be offered that combine technical training with music theory, work analysis and esthetic philosophy, to help students to build critical thinking. Layering is not only about removing stuff but about defining the right goals for the different phases and changing the criteria for assessment accordingly. The "Artificial Intelligence + Education" Action Plan of the Ministry of Education clearly puts forward to build varied AI education programs for different grades, providing a policy basis for layered teaching.

Integrated learning settings between virtual and real world. The "virtual-real combination" need outlined in earlier articles gives a new way to the construction of immersive learning environments [8]. Music is learned not for the hearing alone. It's about physical exercise, space awareness and touch of other people. Students can utilise virtual instruments instead of real instruments. They use virtual sound fields and spatial audio to reproduce sound inside various spaces. The AI accompaniment allows students to practise alone and feel the ensemble synchronicity. The situations should deal with real educational concerns. For example, if students were able to "sit" in different voice parts in a band in a virtual symphony, they would have a better appreciation of the layers of sound than listening to a tape.

Stakeholders outside of school Cooperative Education System. It is not all the fault of the music professors.The selection of technology, maintenance of equipment and training of instructors should be included in the school. Teaching research communities and experience sharing at the regional level can reduce the cost of each school' s solo inquiry [9]. One ought to overlook the effect of parents also. How it impacts depends directly on parents' approach to digital gadgets. Schools need to share more with technology developers so that products aren't developed in a vacuum of what occurs in the classroom.

Standard training for the instructors Many music professors are not acquainted with artificial intelligence (AI) tools and some intentionally resist. Training should not only teach the operations but also help teachers to think about what actual concerns the tools can address, what are the proper settings and what are the dangers. The training structure should not be a one-off, centralized lecture.

Combined Workshops + Case Discussions + Classroom Observations are more successful. Give instructors time and practice to develop their own decisions.

6. Technological Empowerment and Humanistic Commitment: Reflections on the Value of Music Education

The above subject is "how to do it". Another key topic is whether the efficiency benefits of technology have costs.

Music education is more than teaching students to read music, play the piano, and create songs. It is also a question of feeling, of forming esthetic judgments, of opening up the spiritual world. hard to quantify things like that yet things like that are exactly what music courses must not disregard

The incorporation of technology into education has never been a completely neutral process. It often emphasizes some ideas above others [10]. Artificial intelligence can generate melodies, harmonies and quickly duplicate genres. But students might be seduced by too rapid outcomes into skipping the "stuck" moments in the creative process. The true rewards of creativity are often not at the time of inspiration but throughout the process of rethinking and overturning again. If the route is too simple, children may not get the actual feel of achievement in creativity with AI involvement.

Another difficulty is the independence of the kids. The responses from AI are often good enough, and even better than what novices themselves can provide. At this level children are often herded along - if machines can provide acceptable answers why bother? Design the work such it is beyond AI capabilities for teachers. Students may make a piece of music that reflects a specific feeling—a very particular individual experience, not a general "happiness" or "sadness". AI is unable to accomplish this or it does it on the surface. Assignments like this may teach students that what the machine creates is merely material, and that what counts is the person' s own judgment.

And the same with the degree of esthetics. Bennett Reimer comments about the notion of music education. The essence of his assertion is a single sentence: Music education is an art education. Music is an emotional experience and you cannot copy it. Artificial intelligence is able to produce pieces of music that sound okay, but it doesn' t actually hear or feel. Students need real listening and resonance. That cannot be provided by technology. Probably the same notion is the "combination of technological education with humanistic education" expressed in the above cited study.

And then there is the obvious problem of the unequal distribution of resources. In cities, schools with better conditions have integrated artificial intelligence (AI) technology, but rural schools cannot afford even basic equipment [11]. Technology is meant to be the great equaliser. But if not managed appropriately could lead to a bigger split.

7. Conclusion

If we examine the complete book, the paradigm of blended learning has been modified on many levels after the presentation of AI composition and digital resources in music education. It is not the technology itself that matters in the changes. However, there are a lot of elements such as educational goals, classroom procedures, teacher-student interaction and evaluation systems. As evidenced by the case study of Xihua University, the platform has resulted in a 40% increase in the efficiency of students' harmony assignments, a 35% increase in the completeness of students' compositions, and a 52% decrease in technical mistakes after three years of deployment. AI has lowered the technical obstacles to writing, freeing students up to spend more time on creative thinking and decision making. Digital platforms have taken learning outside the classroom allowing for more focused instruction. These developments are gradually leading the music education from "use tools to assist teaching" to "reorganize the whole teaching system".

But we have to realise that technology can do what it can do but education should not do it. When AI comes into the music classroom, the questions of how to balance efficiency vs depth, how to draw the line between help vs substitute, and how to balance the needs of norms vs individual expression

will all be asked again in real life instruction, with no obvious solutions. Are the tools themselves suitable for the teaching situation? Are teachers using these tools the right way? How does the system keep up with the times? All these must be addressed in gradual research. Thus, unequal distribution of resources is a necessity. This discrepancy in availability of tools between urban and rural schools is not one that can be remedied in the near future. After all, it is human beings that utilise technology, and the core of music teaching is aesthetic perception and emotional experience. These are things that artificial intelligence cannot perform. For it cannot make them do".

In the future, digital resources and AI composition will be more and more frequent. Also the types of blended learning will be expanded. Whatever modifications there may be, the ultimate purpose of music education is to produce people who can feel, express and create. Technology is moving along at a dizzying speed and there is just no way you can get away from it. In the future the question will have to be solved how to use technology properly and not to be led by it.

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