SPA-094

Programming Education in Japan: Approaches and Implications for Music in Elementary Schools

Alan Gazzano
United Graduate School of Education, Tokyo Gakugei University-Yokohama National University, Japan

Abstract

As digital technologies reshape societies around the world, computational thinking and programming are being introduced in the school curricula of several nations. In that context, Japan has launched a cross-curricular reform aimed to integrate *programming thinking* (computational thinking) in all subjects. However, questions should be posed on how computer science concepts may be meaningfully integrated into music, in addition to the impact of those measures on music education.

This study examines Japan's *programming education* in elementary school music, officially implemented nationwide in 2020. After an overview of that reform, Japanese sources on *programming* in music-making activities are translated and subjected to a thematic analysis assisted by QDA Miner, a qualitative research software tool. Due to its critical orientation, this analysis takes special account of the interplay of computer science and music learning contents.

Findings reveal that the integration of *programming* in music is based on general definitions that highlight logical thinking, not on a specific theoretical framework aimed at music learning goals, which may lead to creative learning processes being oversimplified. Furthermore, tensions between flexible and fixed-goal approaches are pointed out in music-making activities within this policy framework, as well as interpretations of IT terms that have permeated music education, namely, *algorithm* and *program*. Following that, and stressing the need for specific strategies that can effectively support music learning goals, it is argued that *programming* in arts education should not constrain students' spontaneous expression but transcend logical thinking and foster their creativity within a flexible environment.

Regarding the implications of *programming education* for this field, music may risk being relegated to secondary roles in relation to computer science, as suggested by approaches that seem to define it as a means for assimilating IT-related concepts. That fact raises questions about changes in this subject sparked by the *infotech* revolution of our time, along with challenges and goals particular to this country, such as *society 5.0*. Additionally, further debate is also considered necessary on how teachers, policymakers, academic societies and the entire community, including technology developers, can generate innovative practices for music education in this context.

Even though *programming* in music seems to be in an initial stage, this study may shed light on some of its key aspects, which might also be of interest for other nations.