

# **Innovative Information Technologies for Learning to Play Keyboard Instruments in Pedagogy of European and Chinese Music Education**

Matveeva L.V.<sup>1,\*</sup> Xie Jianzhou<sup>2</sup>, Starostina E.A.<sup>3</sup>

<sup>1</sup>*Ural State Pedagogical University, Yekaterinburg, Russian Federation*

<sup>2</sup>*Huanghe University, Yunnan, The People’s Republic of China*

<sup>3</sup>*Yekaterinburg children’s art school No. 14 named after G. V. Sviridov, Yekaterinburg, Russian Federation*

\**Corresponding author. Email: lada-matveeva@yandex.ru*

## **ABSTRACT**

The article highlights innovative areas of learning to play keyboard instruments, including those based on information technologies. The selected innovations are considered from the perspective of the European and Chinese systems of teaching children to play such instruments. The purpose of the article is to determine the directions of introduction of a number of innovations, including informational ones, in the European and Chinese systems of teaching to play keyboard instruments: piano and accordion.

The historical path of evolution of musical performance on keyboard instruments in Europe with corresponding pedagogical innovations is revealed. The article analyzes the counter innovative trends in the modern music education of schoolchildren in Austria and Russia, and considers the possibilities of mutual introduction of pedagogical innovations based on the positive experience of each country. The article highlights a shorter historical path of the formation of European style keyboard performance in China than in Europe, and the features of the Chinese piano school focused on achieving high technical skill. The authors identify such modern trends in introducing innovations in music education, which are manifested in the Chinese and European music education systems, as the introduction of digital and smart technologies.

**Keywords:** *information technologies, innovation, keyboard instruments, piano, accordion*

## **1. INTRODUCTION**

The concept of “innovation” (from lat. novatio – direction, update, change, innovation - in the direction of change, within the system) is interdisciplinary. In common usage, it means “innovation, novelty” [6], the introduction of something new [5]. In a broad sense, these are changes within the system, the creation and implementation of innovations that generate significant progressive changes in social practice [8]. Innovation is not every new thing, but only that one which provides a qualitative increase in the efficiency of processes and functioning systems as a result of its implementation [5].

In pedagogy, innovations are understood as progressive changes that introduce stable elements (novelties) into the educational environment that improve the characteristics of individual components of the educational system and the system as a whole [8]; innovations in the pedagogical system that improve the course and results of the educational process [5, p.282]; innovations in pedagogical activity, changes in the content and technology of training and education [1, p. 1]. These can be pedagogical ideas, processes, tools, methods, forms, technologies, educational programs, etc. [8].

In modern conditions of expanding the information educational space, such innovative technologies include “smart technologies”, “smart training”, “e-learning”, etc. [2, 3, 9, 10]. These information technologies are actively included in the sphere of musical education of children, in particular, that includes the entire process of teaching to play keyboard instruments (in our study, piano and accordion). The experience of international communication shows that instrumental teachers of various countries, assessing the musical and performing achievements of students, strive to identify new methods, techniques and technologies through which students can achieve higher results in music. However, to prevent superficial consideration of such innovations and their borrowing it is necessary to study the features of development of the desired musical and educational direction in a specific country, to identify successes and challenges, encourage innovations, including information ones.

## **2. METHODS OF RESEARCH**

The research methodology is based on the idea of including information technologies in a specific branch of modern pedagogical education - the pedagogy of music

education, such as teaching children to play musical instruments. The implementation of this very relevant idea is carried out through the use of the following research methods: analysis of literature and electronic sources on the problem, analysis of the experience of organizing music education, content analysis, comparison, benchmarking, synthesis.

### **3. PURPOSE OF RESEARCH**

Based on the analysis of the causes and content of innovations, including the introduction of information technologies in teaching keyboard playing to schoolchildren in Russia, Austria, and China, we can determine the directions of modern scientific research.

It is assumed that the goal is achieved by solving the following tasks:

- to analyze the historical path of the formation of the art of playing keyboard instruments and the corresponding direction in music education;
- to identify innovative ways of introducing information technologies in the process of teaching children to play keyboard instruments.

### **4. RESEARCH RESULTS**

Systematization of historical and cultural, musical and pedagogical and empirical information allowed us to come to the following conclusions. In Europe, including Russia, the development of the theory and practice of teaching to play keyboard instruments was carried out throughout the 18th - 20th centuries in unbroken unity with the processes of improving their design, the formation and development of composing and performing schools. In the historical context, any innovation in the field of teaching to play keyboard instruments (technical and constructive, repertory, methodological) can be considered as an innovation for a certain period of time. Musical and pedagogical attitudes practiced in European countries have evolved over time. In particular, in the 18th - early 19th centuries, the technique of the mechanical method of playing an instrument prevailed, a characteristic feature of which was the priority of technology over content, means over purpose. Innovative for that time were the ideas of outstanding musicians of Europe and Russia about the technical and artistic unity in revealing the artistic image of a musical work, intellectual understanding of the form and content in the process of working on a piece of music. In the process of historical development, there was a rethinking of the target orientations and methods of teaching the musical instrument: focusing on the spiritual development of the student, his or her creative self-realization, initiative, independence; rejection of authoritarian methods, drill, ordering around, cramming, pure "training".

Modern European innovations in the field of teaching to play keyboard instruments are mostly related to the

expansion of the spectrum of artistic development of the child. In Russia, these ideas are embodied in the reliance on a polyartistic approach (the author is B. P. Yusov), implemented in the development of a dominant art form. In Austria, the basis is the provisions of the concept of K. Orff: various forms of collective and improvisational music making, rhythmoplastics, spontaneous self-expression through singing, instrument, dancing are practiced.

The Austrian system of music education is an established, stable system. From the point of view of Russian teachers, the undoubted achievement of this system is the integration of music (music schools) and basic education. So called corporate music lessons are held in conjunction with music school teachers who act as experts in a particular subject. These lessons allow children to learn rhythmic (dancing), ensemble music, and singing. The most important problem (task) developed at the conference of Austrian music schools in the coming years is cooperation with the system of general basic education. Another attraction is the creative self-realization of people who have learned to play a musical instrument in the conditions of amateur musical performance: in Austria there are a huge number of amateur and professional orchestras, choirs, ensembles, and creative teams. Music lovers and professionals often collaborate on one concert venue. The described experience can serve as a basis for pedagogical innovations in the Russian system of music education.

Austrian teachers, in their turn, pay tribute to the traditionally high level of musical and performing skills of Russian schoolchildren (students of children's music schools), which they demonstrate in the conditions of children's and youth competitions and festivals. Private pedagogical innovations relate to the inclusion of elements of the Russian method of teaching playing a musical instrument (individual methods, repertoire, etc.) in the content of musical classes. European colleagues are interested in the content of music education in the Russian three-stage system of music education "children's music school - music college - music university", which includes such basic subjects as solfeggio, musical literature, ensemble, concertmaster skill (for pianists), piano (for accordionists). Such subjects are not included in the curriculum of music schools in Austria.

In China, the art of playing keyboard instruments began to be mastered much later than in Europe - at the beginning of the twentieth century, which is itself a major innovation that greatly influenced the further development of the musical culture of this country. Xu Bo emphasizes that the piano, as a "symbol of European spirituality and culture" [13, p. 62], played a significant role in the study of European cultural traditions in the 1920s. The analysis of the musical and performing achievements of professional and young Chinese pianists allows us to "speak with confidence about the formation of the Chinese piano school as an artistic phenomenon", says Niu Yaqian [7, p. 108]. This school is distinguished by an exceptionally high level of proficiency in the technique of playing the instrument based on finger fluency. The priority setting is

a pronounced focus on the purposeful formation of the technical apparatus from an early age, training of fingers and hands [13]. However, at the international level, claims are often made to the Chinese piano school regarding the emotional component of the performing musician's complex, the ability to reveal and embody the artistic image of a musical work.

In the perception of European music teachers, the current situation demonstrates the problem of the dominance of the technical component over the artistic one, which was quite successfully overcome at a certain stage of the development of the European instrumental pedagogy. For example, modern Chinese teachers rely on the European didactic literature of the first half of the 19th century, which is rarely used in modern Russian music education. However, a detailed analysis of the situation shows that the underlying reasons for the lack of expressive performance of musical works by Chinese virtuoso pianists in the perception of Europeans lie in the differences in the intonation systems of European and Chinese speech and vocal cultures.

The modern system of instrumental music education in China is dynamic and open to innovations of various levels. Pedagogical innovations at the level of ideas include theoretical and methodological justification of the characteristic features of the Chinese school of keyboard playing based on the ideas of Chinese philosophy and mental attitudes, including the correlation of the process of improving the technique of playing the instrument with the ancient Chinese health system "qigong" and the allocation of performing manners "Wen" and "Wu" that meet the national canons of concentration of thought and emotional expression [7, 12, 13].

The dissertation research (Niu Yacian), which compares the main ideas and positions of Russian and Chinese piano pedagogies, structures the principles and methods presented in these systems, and develops an innovative integrative method.

Pedagogical innovation can be considered a kind of introduction of new disciplines to the content of instrumental education in China, designed to deepen the understanding of instrumental musicians of the content of musical works by European and Russian authors (musical literature) and contribute to the acquisition of the European intonation system (solfege).

An innovative way to overcome the problems of intoning European music by Chinese instrumentalists is to include them in singing activities. In this regard, we refer to the experience of teaching Russian to Chinese students at Ural State Pedagogical University in the conditions of a folk Cossack ensemble: "the intonation structure of the chant is very diverse, as in the Chinese language. Therefore, it is not difficult for Chinese students to perform such vocalizations in singing (for example, when chanting the main "a", "o", "u" for a variety of vocal intonations". [4, p. 224].

Based on the world, European and Russian experience, China is beginning to practice the so called "polyinstrumental training" - simultaneous learning to play two musical instruments: piano and accordion, which

opens up wide prospects for the development of innovative methods. This method should take into account significant differences in techniques of exploiting a keypad located on the piano horizontally, vertically - on the accordion, and the distribution of functions of the hands (on the piano - with both hands and the entire score of a musical work is performed, and when playing the accordion the left hand is playing the accompaniment on the keyboard keypad). With this in mind, it is necessary to differentiate muscle sensations and play movements into universal ones that are common for both instruments, and specific ones that are specific for only one of them.

Finally, a special area of innovative research in the field of pedagogy of music education, which is common to the systems of music education in Russia, Austria and China, is based on the ideas of including information and digital technologies in the process of teaching children to play musical instruments, piano and accordion, in particular. The authors consider such methods of training as "paired" with the use of information technologies. Thus, in particular Hill, K. E., Griffith, K. R., Miguel, C. F., they prove the effectiveness of teaching several children to play the piano at once when using a certain program (EBI), which allows the child to remember both certain notes and simple songs. Moreover, the training process embraces 4 children at once, who perform simple songs on the keyboard in pairs. When describing this innovation, however, it should be noted that the authors present their methodological system taking into account the specificities of students - children with autism. Nevertheless, the authors prove the effectiveness of this method and information program for beginners to learn to play the piano [3].

Another innovation to engage children in the process of learning to play the piano by means of information technologies was the use of such innovations as the programs Synthesis and eMedia, as well as piano textbooks available on YouTube. Cremata, R., Powell, B [2], investigating effective ways of such training, come to the conclusion that the most effective program was Synthesis: it allowed to produce the process of teaching children to play the piano quickly and efficiently.

The application "FunPianoAR", developed for Android Studio 3, has become an innovation in the field of using information technologies in teaching to play keyboard instruments, which, like the program already mentioned above, involves paired learning to play an instrument [14]. One of the students can play a melody that is prompted by the program, and the other is playing a harmonic accompaniment. At the same time, for both students, it is easier to apply markers on the piano keys. It is these markers that help the students perform their part quickly and accurately.

Multi-Marker Tracking is a particularly interesting program for beginners to learn keyboard instruments, which allows them to avoid focusing on the process of switching from the visual to the tactile (manual). This program allows the student to look only at the keys, while simultaneously demonstrating the accuracy of the use of fingering to the novice performer [11]. Thus, the

presented information technologies greatly facilitate the process of initial learning to play the piano.

As a result of the analysis, we have considered a number of provisions of pedagogical innovation in relation to the practice of music education, while the relative “novelty” of pedagogical innovation in specific conditions, the

## 5. CONCLUSION

Further research of this problem is aimed at identifying the directions of introducing innovative systems in music education in Russia, Austria and China. It can be continued in the following aspects of research: conducting an empirical study of the effectiveness of musical education of schoolchildren in different countries; selecting and testing the effectiveness of innovative

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dispersion in time and space of individual ideas and their implementation, and, of course, the introduction of various information technologies in the initial stage of learning to play keyboard instruments is particularly demonstrated.

information technologies, certain programs that would be universal for teaching piano and accordion; identifying the ways of using information technologies in polyinstrumental piano and accordion teaching for children and students studying at universities and colleges of the music education system.

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