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The main trends in the modern techniques of playing the wind instrument

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Abstract

The purpose of the study is to present the typology of contemporary methods of playing the flute, classifying them based on the properties of musical expressiveness. The empirical and theoretical approaches to the study were used as the research method. The results of a comprehensive study of experimental pieces for solo flute by foreign authors of the second half of the 20th century indicate new performing techniques become an integral part of the new music and modern composition techniques. In conclusion, the received results are relevant for writing compositions for wind instruments with the use of contemporary playing techniques.

Keywords: Flute playing, Modern instrumental, Music.

Las principales tendencias en las técnicas modernas de tocar el instrumento de viento

Resumen

El propósito del estudio es presentar la tipología de los métodos contemporáneos de tocar la flauta, clasificándolos según las propiedades de la expresividad musical. Los enfoques empíricos y teóricos del estudio se utilizaron como método de investigación. Los resultados de un estudio exhaustivo de piezas experimentales para flauta solista de autores extranjeros de la segunda mitad del siglo XX indican que las nuevas técnicas de interpretación se convierten en una parte integral de la nueva música y las técnicas modernas de composición. En conclusión, los resultados recibidos son relevantes para escribir composiciones para instrumentos de viento con el uso de técnicas de interpretación contemporáneas.

Palabras clave: Flauta, Instrumental moderno, Música.

1. INTRODUCTION

In the second half of the 20th century, the use of the latest performing techniques for playing woodwind instruments was the result of searching for unusual timbres and non-traditional sounding. Rethinking and interpreting traditional methods of sound-producing, searching for a new sounding color and non-traditional ways of notation led to tremendous changes in musicians' performing techniques, and broadened the horizons of ideas about the possibilities of wind instruments.

However, professional musical education in several countries does not pay due attention to the study of contemporary performing techniques characteristic for the music of the 20th- and 21st-centuries composers. This situation does not cope with present challenges, as the performance of the music of the 20th- and 21st-centuries composers is an obligatory component of the programs of most international competitions, participation in which is impossible without the relevant knowledge and possession of contemporary performing techniques.

When analyzing the state of the contemporary musical art, we can observe the process of active search in the field of forms, compositional structures, harmonies, melodic lines and rhythm that led to the accumulation of new linguistic and compositional elements at the turn of the 20th and 21st centuries. The unusual interpretation of the sound of instruments has become one of the important ways in this area. It concerned also the field of flute music performance. At the same time, composers concentrated on complicating traditional methods of playing the flute and introducing fundamentally new methods of sound-producing. The solo genre for the flute, which is in demand among composers, is the consequence of the active development of the instrument. There is a different degree of intensity of these processes in different national composer schools. All the more important is the study of the integral picture of experimental flute music.

When studying the musical art of the 20th century, a modern researcher has the opportunity to rely on a whole body of works devoted to various aspects of such a study. Without setting a global task to cover

in the review of literature all the works devoted to the music of the 20th century, we will designate only the most significant ones, as well as those who found themselves in an area directly adjacent to the problems of flute art. Possession of contemporary performing techniques is necessary for every professional musician. Nevertheless, unfortunately, the study of the latest techniques and their application is episodic and depending on individual expressive means of each composition.

2. METHODOLOGY

The basic monographs and collections of articles on 20th-century foreign music, on the theory of contemporary composition, on the harmony in 20th-century music, on music in the postmodern era, and the musical culture of the United States of the 20th century, as well as the monographs of M. Druskin, C. Kohoutek, and G. Schneerson, are among the basic works concerning the definition of the methodology of music research of the 20th century.

Special attention should be paid to studies devoted to the current state of flute performance. These are, first, the articles of John Heiss, which presented the variants of multi-sound complexes for the flute for the first time, as well as Bruno BARTOLOZZI's (1967) book *New Sounds for Woodwinds*. These authors, for the first time, touched upon the question of the new expressive capabilities of the flute, whereas Robert Dick's coverage of the problem is more consistent and detailed. In his work *The other flute*, he presented the examples given by

BARTOLOZZI (1967) and developed the ideas formulated by his predecessors.

We would like to conclude the literature review concerning the problems of contemporary flute performance by mentioning Harvey Sollberger's book *New Flute* and the work of the German flutist Carin Levine *Contemporary techniques of flute playing*. It is also necessary to mention the dissertation of DENISOV (1986) *Ways to expand the expressive capabilities of woodwind instruments in the music of the second half of the XX century*. In her paper, a general criterion for the typology of contemporary techniques for flute playing is such properties of their musical expressiveness as dynamics, pitch, and timbre, the characteristics of which largely determine performance technique (CHIKNAVEROVA et al, 2019).

3. RESULTS

Contemporary techniques of playing the flute form a typology consisting of three main groups: dynamic, pitch and timbre ones.

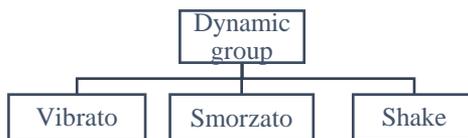


Fig. 1: A dynamic group of performing techniques

This group of techniques is characterized by dynamic changes in sound, the ancestor of which is the vibrato, which has become a traditional means since the second half of the 19th century. Unlike the vibrato for the string-bow instruments, the same technique for the flute, as well as for other wind instruments, is formed due to the greater intensity of dynamic, rather than pitch changes. The vibrato technique is the most traditional performing means which served as the basis for the formation of several contemporary techniques that differ in the range of the amplitude of air vibration such as *smorzato* (less intensive), *shake* (more intensive), etc. (ALEKSEYEVA & GRIGORYEV, 1986).

The *smorzato* acts as an intermediate technique between the vibrato and non-vibrato. This technique without changing the strength of the air jet or pressure is achieved by moving the jaw. The rate of such oscillations can be periodic, be in a certain rhythm or be rhythmically free. In notes, a composer often gives instructions concerning the frequency of performing a technique according to a certain tempo (Fig. 2).

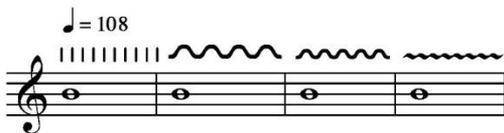


Fig. 2: Designation variants for the *smorzato*

An artificial, slight and intermittent sound jitter created by the diaphragm muscles is the distinctive feature of the *shake* technique.

Leading wind instrument players to consider the vibrato technique as an important factor of expressiveness of sound, noting its similarity with the same means of string-bow instruments. As stated Nicolet: The vibrato is the language of the soul, the language of feelings; each musician has his vibrato. However, you need to be able to control it, as the world’s leading violinists do (ARKADYEV, 1977: AGEEVA, & FOROUDI, 2019).

The second subgroup, on the contrary, is represented by methods with an indefinite pitch such as glissando, oscillato, semioscillato, double buzz, and hidden polyphony. A common feature these methods share is the permanent change in the fundamental tone in the form of glissanding, which is complicated in the last two methods by the addition of a second tone or hidden polyphony.

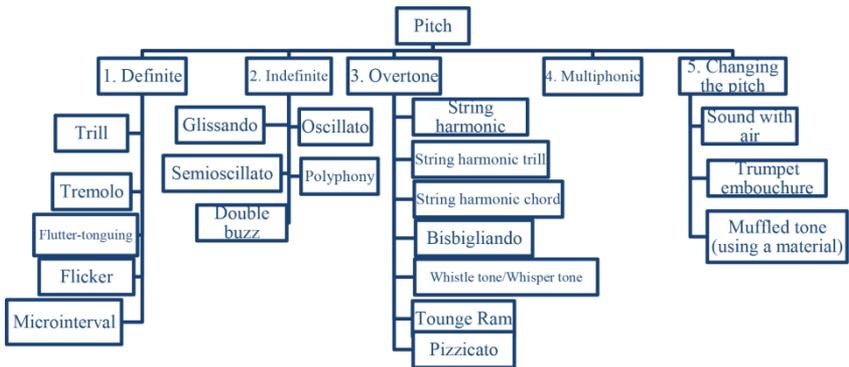


Fig. 3: Pitch group of performing techniques

The third subgroup includes techniques that are formed based on overtones, the participation of which determines the stratification of the pitch parameter of sound. As in other subgroups, string harmonics, which

is the ancestor of this subgroup, is a more traditional technique. Nevertheless, unlike the vibrato or the trill, string harmonics for wind instruments is the feature of the music of the 20th century, because of borrowing similar techniques from stringed instruments. This most traditional method in this subgroup subsequently becomes more complicated in the form of string harmonic trills, chords and bisbigliando. Multiphonics is a variety and complication of the string harmonic subgroup.

The fourth subgroup includes techniques with a varying fundamental tone. However, special timbre effects, in which the following non-musical parameters are involved, characterize their sound formation: sound with air noise, trumpet embouchure, and muffled tone. These techniques have an unconventional timbre, which is common to contemporary music, and in contrast to the techniques of the timbral group, here the pitch is definite. At the same time, this subgroup is indicative of its intermediate position between pitch and timbral techniques.

The figure shows a musical score for a string instrument, likely a violin or viola, in 4/4 time. The score is written on a single staff with a treble clef and a key signature of one sharp (F#). The tempo and dynamics markings are *molto string. e cresc.* and *molto rall.*. Above the staff, there are several diagrams illustrating string harmonics and timbral effects. These diagrams consist of circles representing strings, with some circles filled (indicating a note) and some empty (indicating a harmonic). The diagrams are arranged in groups, with some groups having arrows pointing to specific notes on the staff. The first group of diagrams is labeled *tr - timbral trill*. The second group is labeled *tr*. The third group is labeled *tr*. The fourth group is labeled *tr*. The fifth group is labeled *tr*. The sixth group is labeled *tr*. The seventh group is labeled *tr*. The eighth group is labeled *tr*. The ninth group is labeled *tr*. The tenth group is labeled *tr*. 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Fig. 4: Clarke, I. Orange Dawn

The tremolo and flicker techniques show the genetic ratio of traditional and innovative features. Due to the peculiarities of the sound and its performance characteristics, these techniques are similar to the trill technique discussed above, with which they share uniform and rhythmic alternation of notes. Unlike trills, the tremolo technique is an alternation of sounds at a distance of more than a second (Fig. 5). The flicker technique can be described as almost silent, phantom tremolo, which gives reason to consider it as a complication of the traditional method of playing the flute.



Fig. 5: Tremolo

Microintervals, as intermediate sounds between semitones, have also been defined in the first subgroup of the pitch group of techniques. Robert Dick, in his work *the other flute*, presents the fingering table, which describes in detail the principle of sound-producing. For the composers of the 20th and 21st centuries, the use of micro interval technique is very important, since it is connected with the expansion of the idea of the sound capabilities of the instrument (BERLIOZ, 1972).

A characteristic feature of the second subgroup is the change in the pitch of the fundamental tone and the presence of intermediate tones in the performing techniques. The glissando, oscillato, and semioscillato are

a clear example of this. By varying the position of the embouchure hole of the flute to the performer and by rotating the instrument the flutist changes the section angle of the outgoing air jet with the edge of the embouchure hole, thus he achieves the performance of the glissando almost in the semitone range without changing the fingering (Fig. 6).

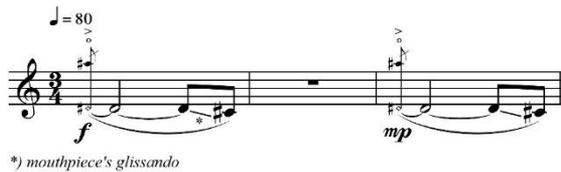


Fig. 6: Moreno, F. Beat flute

The glissando is often used within a tone. However, there is a technique of finger glissando, with which it is possible to perform a passage (Fig. 7).



Fig. 7: Glissando passages

Also, it is possible to raise or lower the sound by varying degrees of lip pressure. When weakening lip muscles, the sound gets lower. When straining lip muscles, the sound rises. This, in combination with changing the section angle of the air jet by rotating the flute, makes the technique more effective. The oscillato and semioscillato, as types of glissando, are

a glissading movement towards one direction from the fundamental tone with a subsequent return (Fig. 8).



Fig. 8: Jeney, Z. Solliquium No. 1 for solo flute

The flute glissando differs from that of bowed string instruments, the performing principle of which consists in the fact that a slight gliding of the finger over the string along the neck reproduces the transition between sounds. Among the wind instruments, the glissando is easier to perform with the trombone where such a sound is achieved by the movement of the slide (DAVYDOVA, 2007). The third subgroup is united by the string harmonic technique, which makes it possible to control the overtone scale and to reveal the sound potential of the flute. This technique was the base for a group of similar techniques united by overtones.

A string harmonic is achieved by overblowing the fundamental tone. It is due to the overtone that indicates the quality of the sound and its coloration. ARTAUD (1984) constructed a scheme of the overtone scale, which makes it possible to demonstrate the number of produced overtones. The flute has up to 9 string harmonics formed based on the fundamental tone, the role of which most sounds can play. However,

some sounds such as Si, Do, Do diesis, Re and Re diesis of the 2-line octave have only two overtones (Fig. 9):

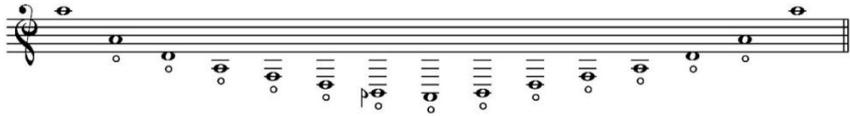


Fig. 9: Natural string harmonics of the western concert flute beginning from Do of the 1-line octave

Composers often use string harmonics to achieve the echo effect or as an opposition to the fundamental tone. It is possible to perform both the string harmonic scale and string harmonic trills but this is a rather complicated technique, which is extremely rare since it requires a serious amount of power from the embouchure. Besides, it is possible to perform an overtone chord, which is built by gradually blowing the overtone scale from the fundamental tone.

The most fascinating technique of playing the flute is the multiphonic one, which is a variation of the string harmonic technique of playing the flute. The multiphonics is a combination of two or more (up to 4) simultaneously sounding notes. As a rule, the flute is considered as a monophonic instrument, the capabilities of which allow only one sound to be reproduced but with the multiphonic technique, the sounding of several sounds at the same time is possible. To obtain the polyphony, you need to control the airflow by manipulating the vibration inside the tube and to reach the producing of two or more sounds at once. The scheme

DAL (1978) (Fig. 10) shows it in the form of two different waves existing inside the same tube.

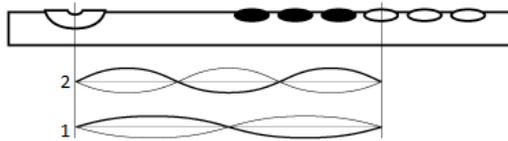


Fig. 10: Scheme of reaching the polyphony

Contemporary methods of multiphonic playing are described in detail in the textbooks of R. Dick and W. Offermans with the attached fingering table. However, not all multiphonic combinations can be performed on all dynamic levels. Some intervals can sound only at a very soft (*pianissimo*) dynamic level or, on the contrary, at a very loud dynamic level. Robert Dick's work *Performance Manual of Contemporary Techniques* describes in detail the errors that flutists commit when they start to study multiphonics.

In the works of contemporary composers, multiphonics is used not only as intervals and chords but also as trills and tremolos. However, these techniques are rather difficult to perform and are used less often. It should be noted that not all multi-voice combinations of notes are performed with the flute, so composers need to consult with a performer (Fig. 11).

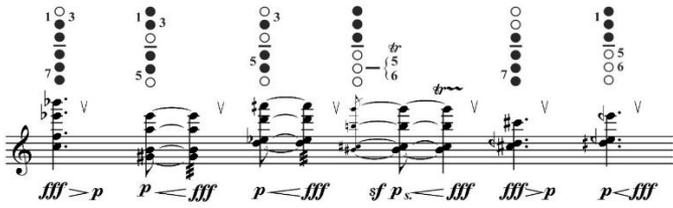


Fig. 11: Fakhradov, Z. «Magum II»

A general characteristic of sound, which unites a group of pitch techniques, is a certain method of changing the pitch, which can be definite and indefinite, i.e. it can be broken down into the range of the fundamental tone and different kinds of additional sound specifically colored by noise characteristics. Fig. 3 reflects the complication of more traditional methods of playing the flute, such as trill, glissando, and string harmonics, which are, like vibrato, in the dynamic group of techniques. They are the ancestors and one of the main factors in the formation of contemporary performing techniques.

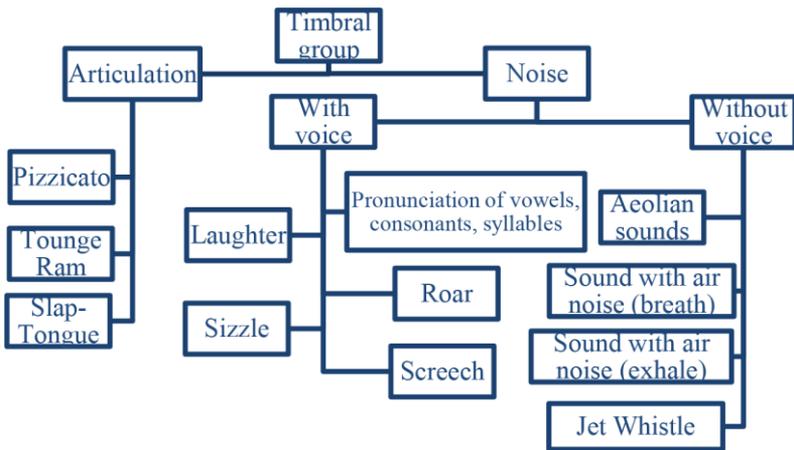


Fig. 12: Timbral group of performing techniques

The Timbral techniques (Fig. 12) represent completely new sound capabilities of the instrument, due to which the repertoire of contemporary flutists has been expanded several times. Many flutists write compositions using new flute techniques and become composers and performers of their works, as it was before the 19th century. It is quite justified that the conceptualization in working on new music is one of the mandatory requirements for a contemporary musician (BERIO, 1995).

In the first subgroup of the timbral group of techniques, a sound is produced in the flute with the help of special types of articulation. In this case, it is possible to draw a parallel with some performing techniques for bowed string instruments, where the sound is produced from the instrument with the help of striking the string with the stick of the bow (*col legno*); or to draw a parallel with some performing techniques for percussion instruments, where the sound is produced with a palm blow or with drumsticks. Pizzicato is among the considered techniques, which was borrowed from stringed instruments. The lips of the flutist are tightly compressed, and then a strong air jet opens them, then the syllable *pa* is pronounced without striking with the tongue, i.e. a sound shorter than *staccatissimo* is performed. In notes, it is designated as ▼ (Fig. 13).



Fig. 13: Daldenbai, B. Illusion

The tongue-ram technique for the flute can be compared to the percussion sound of percussion instruments. This technique has its feature: the flute is turned inward; the tongue is deep in the hole, an air jet is intensively blown into the instrument and the syllable dah or doo is performed by sharply striking with the tongue. This technique is often performed in the lower register and sounds lower by a seventh interval to the fingering performed (Fig. 14).



Fig. 14: Kawashima, M. «Manic Psychosis»

The slap-tongue for the flute is performed clearly and shortly striking with the tongue onto the edge of the embouchure hole. The tongue makes a sharp strike accompanied by a strong diaphragm impulse and the syllable te is pronounced but without blowing the air into the instrument. This subgroup of contemporary techniques is characterized by using non-traditional methods of articulation involving the lips and the tongue, which determine the specific timbre coloration of the sound, in which the pitch level is present but does not form the basis of expressiveness (BELINKOV, 1996).

The general characteristic of the noise subgroup consists of the content and method of contemporary techniques. A characteristic feature of the second subgroup is the creation of a noise effect, additional colors that increase the range of the flute sound and expand the horizons of the

concept of sound. This subgroup includes two types of techniques, one of which involves the vocal tract. At the performance, it is impossible to recognize a certain pitch; it is possible only to consider a melodic line moving up or down and to see a general trajectory of motion. In musical notation, these techniques are designated in the form of words or comments indicating which syllable or sound effect is to be pronounced.



Fig. 15: Polin, Mojiganga

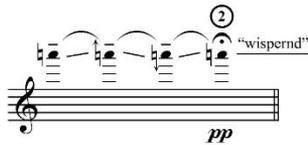


Fig. 16: Willdberger, J. Retrospective II



Fig. 17:

4. CONCLUSION

The dynamic development of the instrument and the accumulation of flute literature present an extensive material for understanding the features of contemporary musical thinking and complex artistic processes occurring in musical art. The problems identified in the article should become the subject of constant attention not only of theoretical researchers but also of practicing musicians. From the active introduction into the professional sphere, the flute has undergone several significant changes that have affected its design and materials for manufacture. The result of a long way to improve the instrument was a significant accumulated flute repertoire, a considerable part of which is the works of the twentieth century for solo flute. In line with the question posed, the work shows the most significant changes in the instrument, which led to the expansion of the technical and expressive capabilities of the instrument.

This is confirmed not only by their active introduction into the structure of musical material but also by the fact that they appear as the main component of experimental works, which are often written entirely based on an extended interpretation of the instrument using traditional techniques as an exception. It can be said that now this process has reached a kind of climax and soon, it does not indicate a decline. The received results are relevant for writing compositions for wind instruments with the use of contemporary playing techniques. The work has practical value in the performing and pedagogical activity of a modern musician. Methodical recommendations for the implementation

of modern techniques for playing the wind instruments, in particular, the flute, will help young performers to learn new material more easily.

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