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## Approaches and Teaching Methods in Breathing and Vibrato Technique in Flute Education

Zehra Ezgi Kara<sup>a\*</sup>, Seyhan Bulut<sup>b</sup>

<sup>a</sup>*Uludağ University, Faculty of Education, Music Education Department, 16059, "Bursa", Turkey*

<sup>b</sup>*Samsun Ondokuz Mayıs University, State Conservatory, Music Department, 55200, "Samsun", Turkey*

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### Abstract

Vibrato is one of the main techniques which gives depth, colour, and even vitality to the instrument it is played with. Using the vibrato technique accurately and efficiently requires a thorough recognition of the musical piece which is played, knowledge about the musical style, being a good listener and a good researcher. The students who receive flute education at university level have certain difficulties when making use of the breathing technique and the vibrato technique. The aim of the present study is to analyze different teaching methods and approaches which are applied for the accurate and efficient use of the breathing and the vibrato technique. In this study, literature review and survey methods have been applied. Academic articles, books, journals, thesis, and online resources were reviewed within the scope of literature review. Based on the data which were obtained from the "Flute Pedagogy Survey", the opinions of the academicians in Turkey and the USA have been evaluated. At the end of the study, it has been observed that many famous flute performers and academicians have different points of views about the breathing and the vibrato techniques. It has been concluded that one of the common views that the flute instructors both in Turkey and the USA share is the necessity of studying the vibrato technique as a separate subject. They also think that the musical work which is played could show variety according to the period it belongs to. In the conclusions part of the study, the vibrato technique and different approaches in teaching methods have been analyzed comparatively and proposals for probable problems that may emerge during the teaching process have been developed.

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\* Zehra Ezgi Kara. Tel.: +90 506 337 08 98; fax: +90 224 294 21 99.

*E-mail address:* [zehraezgikara@hotmail.com](mailto:zehraezgikara@hotmail.com)

## 1. Introduction

Breathing and vibrato technique are commonly argued subjects among flutists and academicians. Although breathing is a natural action for all of us, it is a crucial technique to be developed and controlled for flutists. Breathing is one of the fundamental techniques for students who receive professional flute education. Students who cannot comprehend this main technique have difficulty in utilizing vibrato technique which is expected to be learnt and developed by the students in their further education.

In the book entitled *The Art of Flute Playing* Putnik (1973) stressed that there are two principal factors in proper breathing for the flutist: sufficient quantity of air and support to ensure a steady air stream. Moreover, Galway (1982) states that one should improve three things for a good breathing technique: the quantity of breath, control of it and economical use of it. He refers that there are three sorts of breath. First, there is the deep breath which you have a lot of time to take before beginning to play or in any handy couple of bars' rest. The second sort of breathing which he calls bridge breath is a quick little breath that you take frequently to get you to a convenient spot of full recovery. The third type of breath differs from the bridge breath in being even shorter, quicker and more covert such as inserting micro-breath into a series of repeated staccato notes.

In his book *How to Love Your Flute* Shepard (1999) defines correct breathing as following: diaphragm muscle that normally stands horizontally is pushed downward when a deep breath is taken causing the abdominal wall distended. Diaphragm muscle is also effective when exhaling the breath and it contracts the air in the lungs thus the abdominal wall is kept in again.

In her doctoral dissertation Pearson (2006) explains which muscles and organs are used and how and to what extend they are used in breathing. She concludes that the diaphragm does about 75% of the muscular work while the intercostal muscles (muscles between the ribs) do about 25% of the work. Besides, the lungs hold the air and the abdominal wall (360° around the body) and pelvic floor work synergistically with the diaphragm. Lastly, the spine supports the breathing structures and lengthens and gathers reflexively.

Toff (1996) explains breathing as a three-step process: inhalation, suspension, and exhalation. She gives the following advice:

“For the first step inhalation, relax your abdomen, open your mouth and throat and inhale through your mouth. Open your mouth as if saying “ah” in order to allow air to pass through quickly. Allow the air to fill your abdominal cavity so that the middle torso expands at both front and back. All other parts of your body particularly the shoulders and the chest should remain stationary...The second step, suspension is the preparation for exhalation. When you have filled your lungs to full capacity, hold the full position momentarily; the torso should remain expanded and the throat open while you set the diaphragm and abdominal wall muscles for exhalation. The suspension provides the muscular support that must last for the full duration of the tone...The third stage is the most important of all since exhalation activates the air column in the flute and thereby generates the tone. Exhalation requires the most control and this control is provided by tension between the diaphragm and the muscles of the abdominal wall and chest cavity. Try to keep your rib cage wall expanded while simultaneously allowing the abdominal wall to contract toward its rest position. As the abdominal muscles press against the base of the lungs, the air is forced out”.

Finding a good place to breathe without detuning the musical structure is as important as correct breathing technique. Beginner students should be encouraged to mark the places for their breathing and observe the marks as soon as possible in their study. Breath should be taken in accordance with the musical phrase, in rests and after the longest note available. When determining where to breathe, it is better to break a slur (not a tie) than to break the rhythm. Also breathing before the last note or two of a phrase should be avoided (Putnik, 1973).

There are different opinions about learning vibrato and its effect on efficient breathing. Several flutists felt that vibrato instruction is a hindrance to breathing while another mentioned that it enhances breathing (Holm, 1997). Either way breathing and vibrato technique affect each other directly.

Debost (2002) defines vibrato as a modulation in the pitch of the flute tone, making it rise and fall in a more or less controlled fashion. According to Toff (1996) there are three basic types of vibrato: pitch, intensity and timbre. In pitch vibrato, the pitch fluctuates both above and below the starting note, on A-440. For instance, it varies between 438 and 442 frequencies per second. Intensity vibrato on the other hand is a fluctuation in the dynamic level. The combination of pitch vibrato and intensity vibrato is called the timbre vibrato.

There are different approaches related to teaching of vibrato. The first school believes that vibrato should develop naturally and should not be taught because it is something resulting from one's own musical feeling. Moyses, Taffanel, Gaubert, Maquarre and Barrera are some of the famous flutists who represent the first school. For instance, famous jazz flutist McBirnie (2001) claims that he discovered vibrato himself. The second school believes that it must be taught since vibrato must be carefully controlled. In his book entitled *Flute* (1982), James Galway also supports this idea. The third school agrees that some players have natural vibrato, but others must be taught. Even those with a natural vibrato can be taught to improve and control of this technique (Toff, 1996).

The purpose of this study is to analyze different approaches and teaching methods which are applied for the accurate and efficient use of breathing and vibrato technique.

## 2. Methodology

The problem statement of the study is determined as "What are the approaches and teaching methods in breathing and vibrato technique in flute education?" The data in this study are collected with the literature review and survey method. Academic articles, books, journals, thesis, and online resources were reviewed within the scope of literature review. The Flute Pedagogy Survey was developed by Kara based on Lancaster's (1994) doctoral dissertation named "Analyzing Flute Pedagogy: A Discussion with Selected Pedagogues". The survey was conducted via the internet using program Questionpro. For the interpretation of the data gathered from the Flute Pedagogy Survey, Kara's master's thesis entitled "The Comparison of Flute Education in Undergraduate Studies in Turkey and in the United States of America" was utilized.

In the United States of America (USA) part of the survey applied to the academicians in Turkey and the USA, the population was constituted of the instructors serving in the area of flute in the institutions accredited by the National Association of Schools of Music (NASM). The sample was determined randomly among the instructors who work in the accredited institutions. The survey was answered by 63 participants out of 100 instructors. In the Turkish part of the survey, the population was constituted of the instructors working in the area of flute education in the institutions affiliated to YÖK (Council for Higher Education). The survey was answered by 34 participants out of 60 instructors. The data from the survey was tabulated, and interpreted by analyzing with percentage and frequency calculations. The survey results are limited to the instructors working in the area of flute in higher education institutions which provides undergraduate music education in Turkey and the USA.

## 3. Findings and Conclusion

The data gathered from "Flute Pedagogy Survey" about the opinions of academicians in Turkey and the USA on vibrato are presented in Table 1. According to this, the shared opinions that the instructors in Turkey and the USA are: (1) vibrato varies with the historical style of the piece (2) vibrato should be isolated and practiced (3) it is always an important element for tone.

While the opinion that "vibrato should be isolated and practiced" is one of the points on which the instructors in Turkey and the USA agree most (Mean= % 67,385), the opinion that "vibrato should be allowed to develop naturally if possible" is another opinion (Mean= % 51, 98) among the participants.

Table 1. Statements of Flute Teachers Relating to Vibrato

|  | USA |       | Turkey |       |
|--|-----|-------|--------|-------|
|  | N   | %     | N      | %     |
| Produced with the diaphragm                        | 11  | 17.46 | 17     | 50.00 |
| Produced with the throat                           | 15  | 23.80 | 4      | 11.76 |
| Produced with both diaphragm and throat            | 30  | 47.61 | 13     | 38.23 |
| Should be allowed to develop naturally if possible | 34  | 53.96 | 17     | 50.00 |
| Should be isolated and practiced                   | 46  | 73.01 | 21     | 61.76 |
| Always an important element of the tone            | 38  | 60.31 | 23     | 67.64 |
| Varies with the register                           | 37  | 58.73 | 14     | 41.17 |
| Varies with the dynamic level                      | 42  | 66.66 | 16     | 47.05 |
| Varies with the historical style of the piece      | 55  | 87.30 | 24     | 70.58 |
| Other (please explain)                             | 21  | 33.33 | 2      | 5.88  |

Flute instructors participated in this survey have stated their opinions on vibrato in the open-ended part. Some of the quotations are as following:

“The vibrato occurs in the throat but we don't think of it there or it gets too jagged. The diaphragm is an involuntary muscle that we use for breathing (it contracts when we inhale). We support with our abdominals but not tightly. Referring to the physical aspects may cause tension and artificial sense of vibrato. Yet, we do need to be aware of the physical contribution.”

“Individual instruction is necessary to understand the element of vibrato in flute tone production.”

“The vibrato study varies enormously, depending on the student's natural ability, physical aspect, and musical maturity. A clean and well developed tone should precede the use of vibrato. Since various styles - from Baroque to contemporary require varied vibrato (and no vibrato). Control of the vibrato mechanism and understanding of its physical demands is vital. Relaxation of the head, chest, and lower jaw must be encouraged; therefore a student should be able to understand and practice these. Then they can be applied to well-developed embouchure and air stream.”

“I have used diaphragmatic modulation as a way of starting vibrato in those students who have trouble producing it instinctively. It occasionally works.”

“It is a combination of intercostal muscles and throat vibrating in sympathy.”

“It should be taught early, like any other technique. It should be taught as an expressive element, but not as a constant thing.”

“It is a combination of diaphragm and throat. But I try to teach it only from diaphragm and as little as possible from the throat.”

“You can do vibrato exercises that use the diaphragm as a facilitator, but there have been enough studies to show that the throat is where vibrato occurs (the glottis and vocal chords should not engage).”

“Straight, non-vibrato tone has its place in musical expression; I also stress solid tone development minus vibrato so as not to cover up weaknesses in fundamental tone production. For me, diaphragm actually refers to the abdominal muscles, and I stress this fact to my students. One can act on the diaphragm only by means of inhaling, exhaling or with abdominal pressure. In vibrato, accents or other types of expression, these abdominal pressures are pulsated.”

According to Table 1, while “vibrato should be performed from the diaphragm” is the opinion which the instructors in the USA agree on the least (17.46%), this opinion is agreed with 50 percentage among the Turkish instructors. Some experiments were performed to clarify how and in what way the diaphragm is used. Gartner (as cited in Manning, 2012), conducted experiments using electromyography to document electrochemical reaction of muscle groups in twelve performing flutists. The study shows that vibrato does not originate in the diaphragm due to its manner of production; diaphragm vibrato should actually be referred to as thoraco-abdominal vibrato. Furthermore, the diaphragm is fixed in the sense of support and alternation of tension and release of breath is brought about by a periodic compression and release of abdominal and thoracic muscles. In every case the larynx is actively participating with muscular activity. Thus thoraco-abdominal vibrato is always a mixed type. On the other hand, he documented purely laryngeal vibratos without any participation by the abdominal muscles, thoracic muscles, or diaphragm. Thoraco-abdominal vibratos tend to be of lower frequencies but the highest frequencies were produced by subjects with purely laryngeal mechanisms. Laryngeal vibrato has the widest range of all vibrato types and is preferred in *pp* dynamic levels in all registers.

Weait (as cited in Manning, 2012) also conducted a similar experiment on himself using x-rays and video tape while playing. He concluded that vibrato originated and was controlled by the action of the laryngeal muscles. It is produced by slightly and periodically narrowing the glottis (the space between the vocal cords) without completely closing it.

The results of these experiments show that vibrato is not only produced with the diaphragm. The diaphragm muscle functions only as a supporter. The main muscles which help to produce vibrato are actually larynx, vocal cords and abdominals. Galway (1982) also mentions that the muscles of the throat are responsible for controlling the pressure in vibrato playing, and the diaphragm is merely quivering in sympathy. On vibrato education Galway adds that:

“For beginners it has to be a mechanical exercise. Blow a single note making ha-ha-ha sound distinctly and

separately. Blow it again with a faster ha-ha-ha. Then again still faster. And so, by degrees of acceleration, until its really fast you drop the “h” and let the notes run together in a perfectly regular undulation of pressure. When you have done it as fast as you can, put the metronome up a notch and do it faster.”

William Kincaid, who is often referred as *the father of American flute school* also agrees that vibrato is controlled by a muscle in your throat, the same muscle with which you cough (Bayley, 2006). In the interview of Frances Blaisdell, she describes the pedagogical approach of her teacher Kincaid. He gave her basically three vibrato exercises to control of the throat muscles. First exercise was about throat staccato. Say "ha-ha-ha" on C2 with four sixteenth note per beat and four beats per measure at 72 metronome. That gives the pulsations which make the throat staccato. After she perfectly handled the evenness and the speed of throat vibrato the “ha” syllable changed to “who”, so that there is a more legato feel, and worked chromatically down from C2 to G1. At the last exercise she started on G1 and played two beats of sixteenth note pulsation and worked chromatically up to the one octave higher with the same tempo (Schwoebel, 2001).

George (2002) suggests the following to provide a basic vibrato: “In order to explore a controlled opening and partial closing of the vocal folds student has to play “*hah hah hah*” very staccato and quietly on a third line B. The initial “h” sound opens or separates the vocal folds and the silence in the separation of the staccato produces a minor closing of the folds. Practicing counted vibrato also keeps your vibrato under control. Generally we calculate vibrato with a metronome setting between 60 and 80. For beginner students, practice three pulsations per tick on low D for eight to sixteen counts with a rest in between each set. Strive to increase the number of vibrato cycles from four to five on each metronome setting. Finally with the metronome set on 60, practice six vibrato pulsations.” She also suggests practicing slurred scales with 2, 3 and 4 pulses per quarter note.

Students need regular exercises to comprehend and apply breathing and vibrato technique in flute education. Considering the differences in terms of talent and capacity among the students in breathing and vibrato, applying a fixed program for all students should be refrained. To illustrate, some students can discover vibrato naturally while the others may need to discover it by practice. Flute educators should observe their students carefully in this process and prepare a tailor-made program that would fit for each student. The muscles and organs used for breathing and vibrato technique should be explained theoretically as well as practically. Visual materials, books and articles on this issue should be utilized. It should not be forgotten that one of the basic rules of becoming a good flutist is breathing and using effective vibrato, and thus students should be provided with required motivation for their development on this matter.

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